F·A·A·M facility for airborne atmospheric measurements

FLIGHT FOLDER

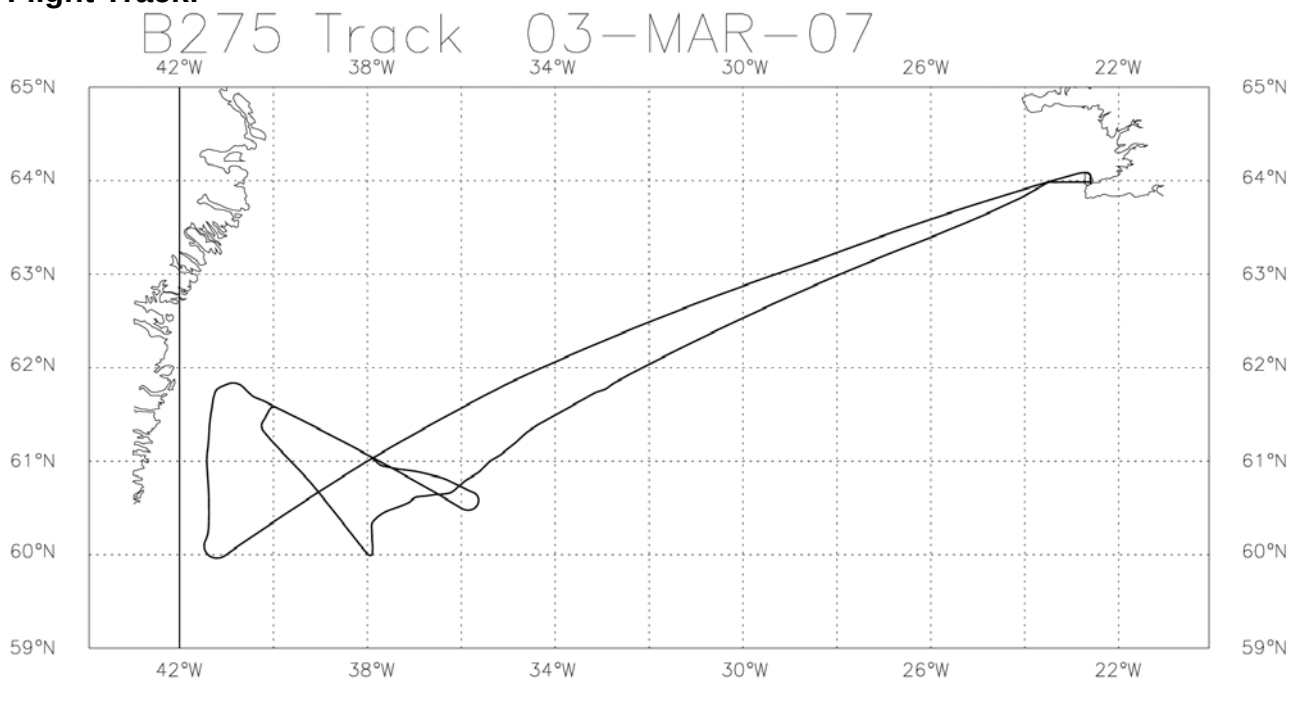
Flight No.:	B275
Date:	03 March 2007
Take Off	09:39:38Z
Landing:	15:36:46Z
Flight Time	5h57m08

Campaign: GFDEX – Lee Cyclogenesis / Barrier Wind

Operating Area: Denmark Strait

POB	Position	Name	Institute
1	Captain	Alan Roberts	Directflight
2	Co-pilot	Steve Ball	FAAM
3	CCM	Gaynor Ottaway	Directflight
4	Mission Scientist 1	G. Nina Petersen	University of East Anglia
5	Flight Manager	Mo Smith	FAAM
6	Cloud Physics	Kate Turnbull	FAAM
7	AVAPS / CCM2	Stuart Heath	FAAM
8	Mission Scientist 2	Jon Egill Kristjansson	University of Oslo
9	Mission Scientist 3	Haraldur Olafsson	Icelandic Met Office
10	Mission Scientist 4	Ivan Fore	University of Oslo
11	Mission Scientist 5	Idar Barstad	University of Oslo - check
12	Mission Scientist 6	Inge Johennessen	University of Reading
13	Mission Scientist 7	Mel Shapiro	National Center for Atmospheric Research
14			
15			
16			
17			
18			
19			
20			

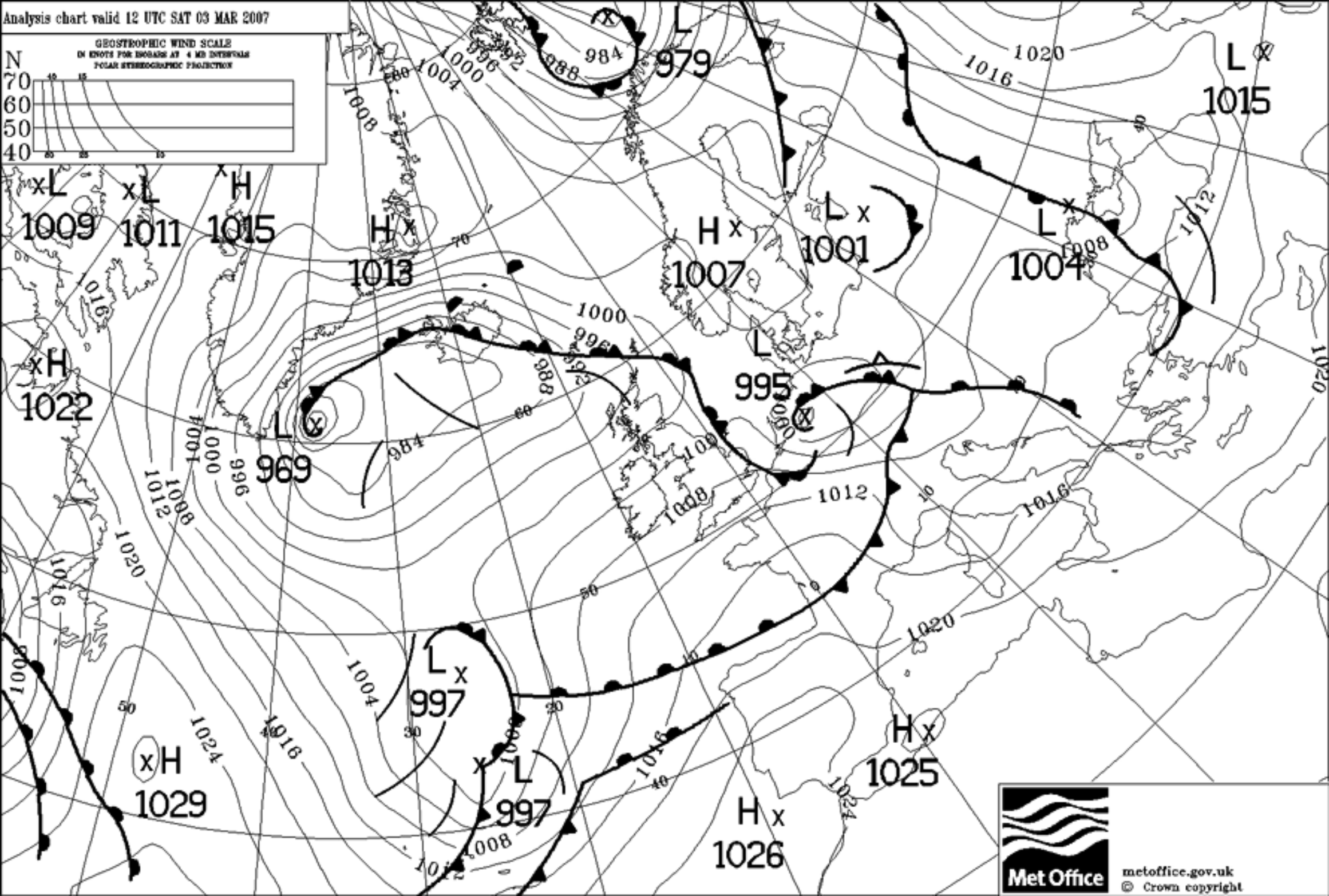
Flight Track:



FLIGHT SUMMARY

Flight No b275
Date: 03 Mar 2007
Project: GFDEX - Extra Tropical Cyclone
Location: SE Greenland

Start Time	End Time	Event	Height (s)	Hdg	Comments
091938		Start-Up	1.0 kft	276	63'58.45N, 22'35.80W
092538		INU	1.0 kft	276	To Navigate
093938		T/O	2.5 kft	346	Keflavik
100203		Videos	24.0 kft	246	Start FFC & DFC
100214		Event	24.0 kft	246	Contrailing
095400	103348	Run 1	24.0 kft	240	
103259		Sonde	24.0 kft	240	Launch #01, RFC
103349	103428	Profile 1	24.0 - 24.6 kft	240	
103600		Run 2.1	26.0 kft	239	
104946		Sonde	26.0 kft	240	Launch #02
105842		Sonde	26.0 kft	238	Launch #03
110746		Sonde	26.0 kft	239	Launch #04
111306		Sonde	26.0 kft	237	Launch #05
111754		Sonde	26.0 kft	238	Launch #06
112243		Sonde	26.0 kft	237	Launch #07
112726		Sonde	26.0 kft	237	Launch #08
114800		Videos	26.0 kft	116	Change Tapes
115232		Sonde	26.0 kft	065	Launch #09
115824		Sonde	26.0 kft	117	Launch #10
120225		Sonde	26.0 kft	115	Launch #11
120651		Sonde	26.0 kft	116	Launch #12
121120		Sonde	26.0 kft	116	Launch #13
121550		Sonde	26.0 kft	118	Launch #14
122018		Sonde	26.0 kft	119	Launch #15
122443		Sonde	26.0 kft	119	Launch #16
122500	123033	Profile 2	26.0 - 17.8 kft	113	1000fpm
123042	123441	Profile 2	17.6 - 15.5 kft	297	500fpm
123451	124519	Profile 2	15.3 - 6.2 kft	289	1000fpm to 5k'
124519	130222	Run 3.1	6.2 kft	304	5k' on QNH970
132050		Videos	6.2 kft	131	Change Tapes
130344	133038	Run 3.2	6.2 kft	001	
133200	141756	Run 3.3	6.2 kft	001	
133655		Event	6.2 kft	041	Turning
141757	143141	Profile 3	6.2 - 21.0 kft	064	From 5k'
143142	151740	Run 4	21.0 kft	070	
153646		Land	0.99 kft	090	Keflavik
154519		Shutdown	1.0 kft	290	63'58.45N, 22'35.78W


Analysis chart valid 12 UTC SAT 03 MAR 2007
GEOSTROPHIC WIND SCALE
IN KNOTS FOR ISOBARS AT 4 MB INTERVALS
POLAR STEREOGRAPHIC PROJECTION
N
70
60
50
40
L 1009
L 1011
H 1015
H 1013
L 979
H 1007
L 1001
L 1004
L 1015
H 1022
L 969
L 995
H 1029
L 997
L 997
H 1025
H 1026
Met Office
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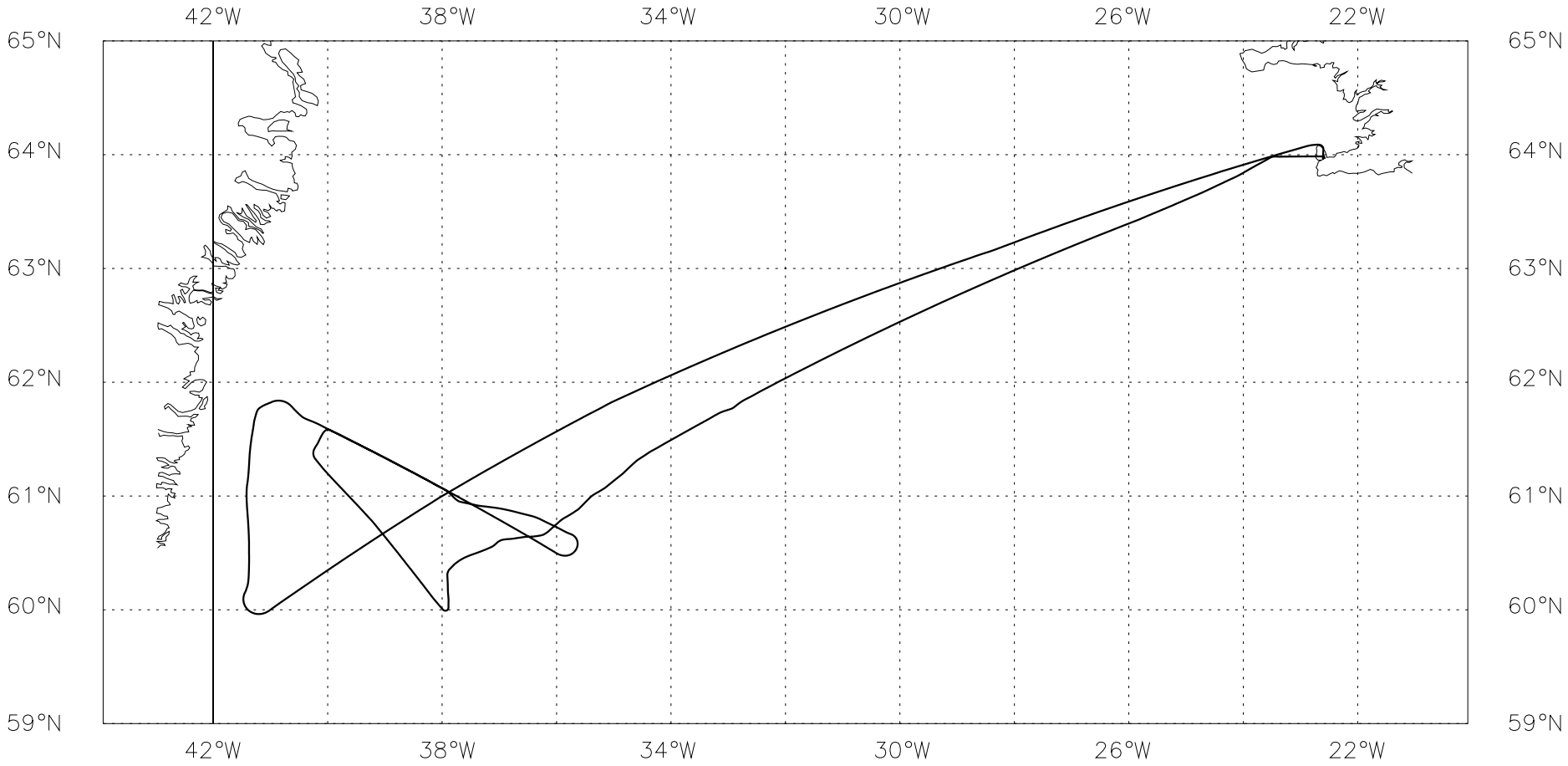
B275 Track 03-MAR-07



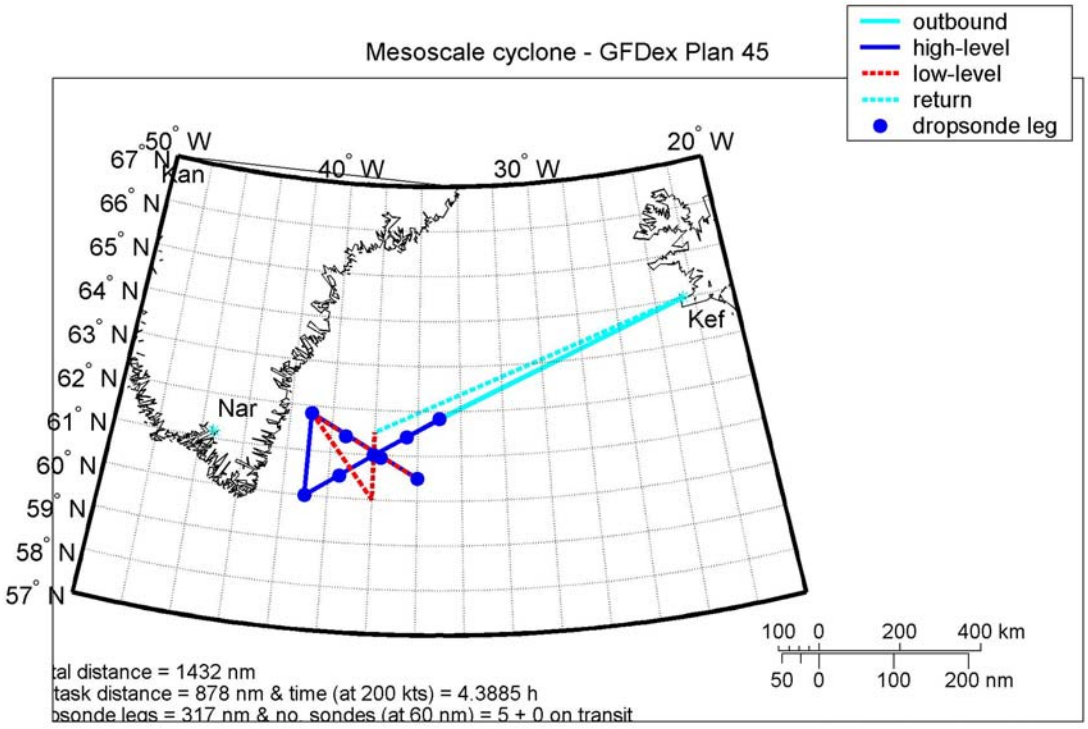
GFDex Sortie Brief #45 – 3rd March 2007 – Greenland lee cyclone

Mission Scientist 1 – G. Nína Petersen
Mission Scientists – Jón Egill Kristjánsson, Haraldur Ólafsson, Melvyn Shapiro, Ivan Føre, Idar Barstad

Aims

- Map out 3-D structure of the deep extra-tropical cyclone located at approximately 61°N 38°W under the influence of NW flow over Greenland
- Low-level flight legs to capture the structure of the back-bent warm front that is wrapped around the low centre

B275	Time	Maneuver	Distance (nm)	Duration (min)	Total time (min)
1	9.30	Take off from Keflavík, head towards 61°50N 35°W at 25-30 kft, **dropping one sonde at midpoint of leg** (63°10N 28°20W)	360		
2		From 61°50N 35W to 61°N 38°W at 25-30 kft **drop sondes every 50 nm (3 sondes)**	100		
3		High level leg from 61°N 38°W to 60°N 41°W, **dropping sondes every 25 nm (4 sondes)**	105		
4		Straight level leg at 25-30 kft from 60°N 41°W to 61°50N 41°W	95		
5		Straight level run at 25-30 kft from 61°50N 41°W to 60°30N 36°W, **dropping every 20 nm (8 sondes)**, including start point	160		
6		Profile descent to 5,000ft from 60°30N 36°W back to 61°50N 41°W.	160		
7		Straight level run at 5,000 ft from 61°50N 41°W to 60°N 38°W. **If not enough fuel, cut this leg any time.**	140		
8		Straight level run at 5,000 ft from 60°N 38°W to 61°30N 38°W. **If not enough fuel, cut this leg any time.**	90		
9		Transit back to Keflavík	450		


Mesoscale cyclone - GFDex Plan 45
outbound
high-level
low-level
return
dropsonde leg
50° W
40° W
30° W
20° W
67° N
66° N
65° N
64° N
63° N
62° N
61° N
60° N
59° N
58° N
57° N
Kan
Nar
Kef
100 0 200 400 km
50 0 100 200 nm
tal distance = 1432 nm
task distance = 878 nm & time (at 200 kts) = 4.3885 h
bsonde legs = 317 nm & no. sondes (at 60 nm) = 5 + 0 on transit

Mission Scientists Debriefing Sheet

Flight No. 275
Date: 03.03. 2007

Sortie Objectives: Map out the 3-D structure of a deep extra-tropical cyclone that is under the influence of northwesterly flow over Greenland. Low level legs to capture the structure of the back-bent warm front that is wrapped around the low centre.

Summary of weather: The cyclone was predicted to be located at 61^{o}N 37^{o}W at noon with low level winds of ~20kt from southwest and south to the east of the cyclone and 50-60kt from the north and northwest to the west of the cyclone. The cyclone turned out to be located slightly farther south and east, there might even have been a shift to the south at the time of the dropsonde legs.

Flight pattern: Two dropsonde legs. One sonde was launched at 63^{o}10N 28^{o}20W to capture more of the general pictures. Two dropsondes were launched to the northeast of the predicted cyclone centre. Measured 925hPa winds were SSW 10kt and ESE 10kt. At the predicted cyclone centre the low level wind had turned to NNE 40kt give the impression that the cyclone centre was slightly farther east than predicted. The sondes launched to the west of the predicted centre all showed strong N-ly to NW-ly winds at low levels. Although dropsondes 13 and 14, at the predicted centre and just to the southeast measured NE-ly wind at low levels the shift to S-ly wind direction and a drop in the wind was not detected until dropsondes 15 and 16, indicating the centre being farther to the east. Leg 6, back towards 61^{o}50N 41^{o}W was abandoned at 61^{o}24N 40^{o}W, as there was no change in the wind, instead we went straight into Leg 7 at 5000ft towards the south of the predicted cyclone centre. There was some confusion about the wind direction as Horace and the GPS wind direction were quite different, the reason may be related to the turbulence probes being iced up, but Alan Wolley also had an explanation related to the northerly latitude we were operation on. In the end it was decided to fly perpendicular to the GPS wind direction in order to find the eye of the cyclone. That was a success. We flew through the clouds in the warm front, with more convection as we got closer to the cyclone centre, CBs with tops at 8-10kft. The eye was had cloud walls and a calm centre. When transit back started the location of the aircraft was close to start of Leg 2, 61^{o}50N 35^{o}W, instead of being at 61^{o}30N 38^{o}W as was in the plan. The ozone concentration went up to ~230 ppb around 41^{o}W indicating low tropopause.

Assessment of the Flight: The flight turned out well, but the change in flight plan that could not have been made before flight was essential. Without the change we would have missed the centre of the cyclone. It is going to be interesting to model this case as well as analyse the data in details.

Guðrún Nína Petersen

Ozon 230 ppb ~ 1120 – 1150

Mission Scientist's Log

Flight No B275 Date 03.03.07 Name GNP Page 1 of 3

GMT	Run / Profile	Height	Hdg	GPS Position	Remarks (clouds, weather, visibility, winds, sea state etc.)
9.39					TAKE OFF CB in surround.
		3700ft			~~Strg tops~~ stratified Cloud tops. CBs higher.
					CB tops ~ 18~~0~~ kft. (18-20)
9.54		24 kft			tops of cirrus.
10.05					Sonde changed fr. 28°20W → 32W
10.32		24 kft	241	62°24 32W	DS1 from Horace. ~~8~~ 9 mls 143° ~~300~~ 50kt 9 NM dist. CIC
	Climb to ~~25~~ kft				
10.~~40~~ 35		25 kft	238	61°48N 35°0W	DS2 wnd 9 mls 122°
10.58		26 kft	238	61°24N 36°30W	DS3 wnd 5 mls 94°
11.06					26 kft – 25 at tops.
					bulk at 18-20 kft in wall
					centre with fair weath. cum
11.08~~2~~5		26 kft	231	61°0N 37°54W	DS4 wnd 2 mls 35°
11.13.		26 kft	237	60.42N 38 48W	DS5 wnd 4 mls 327°
11.18.02		26 kf	237	60°30 37°30	DS6 wnd 6 mls 3~~4~~11°
11.2243		26 kf	237	60°12 40°12	DS7 wnd 7 mls 333
11.27.31		26 kft	335	60°N 41°W	DS8 wnd 11 mls 330.
11.53		26 kft	57	61°42N 41°6 W	DS9 wnd 12 mls 6P0
11:58		26 kf	115	61°36 40°06W	DS10 9 mls 67°
12.02		26 kf	115°	61°24 39.30	DS11 9.. 72.
12 06		26	116°	61 12 38 42	DS12 8 72
12 11		26	117	61°0 39°06	DS13 8 85°
1216		26	117	60 54 37 24	DS14 7 99

32W

Mission Scientist's Log

Flight No B375 Date GNP Name GNP Page 2 of 3

GMT	Run / Profile	Height	Hdg	GPS Position	Remarks (clouds, weather, visibility, winds, sea state etc.)
1220		26	118	60°42 36°48	DSIS 6 99°
12.24		26	122	60°30 36°0	DS16 6 146°
12 25					profile descent to FL080
1239					cloud tops 13kft
					lower cum below
1240		11.1kft.			wnd 23 32 m/s 33°
1243				61 N 37 54W	CB tops 5000 N 6000ft.
1245		5kft			end of profile
1248		5kft.			in clouds
12 58					some turb. light.
				61°24 40°W	Did not finish the Run
					since no change in wind
					returned back to L7
1305 roughly		5kft.		61 PN 40 12W	back on track @ 30mb 190
1316				61°0N 39°48W	took some pic of radar
					Prob out of focus!
1313					in clouds for the whole
1319					leg Met has
19.19					21 m/s 18° ~~GPS~~ gps
1920					out of clouds
1929					in cloud tops
1325					019 34 m/s from CB
					Got no w-ly flow at the south

Mission Scientist's Log

Flight No B275 Date 03.03.07 Name GNP Page 3 of 3

GMT	Run / Profile	Height	Hdg	GPS Position	Remarks (clouds, weather, visibility, winds, sea state etc.)
13 33		5 kft.			CB up to 8-10 kft ?
					325 055 as heading
13 37					changing flight plan. to
					get to the east where hop.
					low is.
					330° head. 060
13·40					350 24 very diff. to GPS
1342					004 42 kt F
					esp. diff. in dir.
					Hdg. 128 GPS 023
13 45					032 33 kt (Hdg. 103 17 m/s)
					we're heading back
					closer to OP point #2
1349					025 29 kt.
1351					020 29 kt (14.9 m/s)
1352					001 24 kt (12.3 m/s)
13 52					968 hPa
13 52					350 25 kt.
					L just to the left.
1360					290 5 m/s
					240 11 kt (190 5 m/s)
15.37					LANDING
~5:00 flight.					

CLOUD PHYSICS LOG

Flight No. B275 **Date: 03/03/07** **Operator: KFT** **Page 1 of 1**

G.M.T.	PCASP		FSSP	SID1	2D2-C			2D2-P			Remarks
DRS Time	Conc/cc	Mean R	Block Transfer	Particle Count	Conc/L	Max Size	Habit	Conc/m3	Max Size	Habit	
09:17	Vref=~7V										Logging started
09:40							1			1	First 2D images
09:44			Bases incr'd								
09:51								Data-rate 1Hz			
09:55			Bases incr'd								FL240
10:00:00	80	0.06	7	-	50	300	4,10	NOISE			
10:05:00	50	0.06	9	-	1.5	300	4,9	NOISE			
10:10:00	57	0.06	11	-	10	200	11,8	NOISE			
10:15:00	80	0.06	12	0	1.5	200	11,8	NOISE			
10:20:00	85	0.06	12	-	1	300	11,8	NOISE			
10:25:00	88	0.06	13	-	0	0		NOISE			
10:30:00	132	0.06	13	-	0	0		NOISE			
10:33:00	120	0.06	13	-	0	0		NOISE			SONDE 1
10:36:00	156	0.06	13	-	0	0		NOISE			FL260 start run 2
10:40:00	170	0.06	13	-	0	0		NOISE			
10:45:00	185	0.06	13	-	0	0		NOISE			CIP RESTARTED
10:49											FFSSP ANNULUS BASE INCR
10:49:47	233	0.06	13	-	0	0		NOISE			SONDE 2
10:55:00	241	0.06	13	-	0	0		NOISE			
10:58:42	303	0.06	13	-	0	0		NOISE			SONDE 3
11:00:00	369	0.06	13	-	0	0		NOISE			
11:07:48	253	0.06	14	-	0	0		NOISE			SONDE 4
11:10:00	345	0.06	14	-	0	0		NOISE			
11:13:08	287	0.06	14	-	0	0		NOISE			SONDE 5
11:15:00	360	0.06	14	-	0	0		NOISE			
11:17:56	291	0.06	14	-	0	0		NOISE			SONDE 6
11:20:00	381	0.06	14	-	0	0		NOISE			
11:22:44	370	0.06	14	-	0	0		NOISE			SONDE 7
11:27:27	320	0.06	14	-	0	0		NOISE			SONDE 8
11:45:00	302	0.06	15	-	0	0		NOISE			
11:50:00	280	0.06	15	-	0	0		NOISE			
11:52:33	229	0.06	15	-	0	0		NOISE			SONDE 9
11:58:25	234	0.06	15	-	0	0		NOISE			SONDE 10
12:02:27	227	0.06	15	-	0	0		NOISE			SONDE 11

CLOUD PHYSICS LOG

Flight No. B275 **Date: 03/03/07** **Operator: KFT**

G.M.T.	PCASP		FSSP	SID1	2D2-C			2D2-P			Remarks
DRS Time	Conc/cc	Mean R	Block Transfer	Particle Count	Conc/L	Max Size	Habit	Conc/m3	Max Size	Habit	
12:06:53	297	0.06	16	-	0	0		NOISE			SONDE 12
12:11:22	248	0.06	16	-	0	0		NOISE			SONDE 13
12:15:52	304	0.06	16	-	0	0		NOISE			SONDE 14
12:20:19	292	0.06	16	-	0	0		NOISE			SONDE 15
12:24:45	255	0.06	16	-	0	0		NOISE			SONDE 16
12:25:00	267	0.06	16	-	0	0		NOISE			FL260 PROFILE
12:26:00	239	0.06	16	-	0	0		NOISE			FL250
12:26:40	312	0.06	16	-	0	0		NOISE			FL240
12:27:20	289	0.06	16	-	0	0		NOISE			FL230
12:27:55	311	0.06	16	-	0	0		NOISE			FL220
12:28:28	286	0.06	16	-	0	0		NOISE			FL210
12:29:07	292	0.06	16	-	0	0		NOISE			FL200
12:29:45	274	0.06	16	-	0	0		NOISE			FL190
12:30:22	351	0.06	16	-	0	0		NOISE			FL180
12:31:30	369	0.06	16	-	0	0		NOISE			FL170
12:33:35	307	0.06	17	-	0	0		NOISE			FL160
12:35:13	393	0.06	17	-	0	0		NOISE			FL150
12:36:20	512	0.06	19	-	0	0		NOISE			FL140
12:37:34	495	0.06	171 – FROZEN	-	0	0		NOISE			FL130 FFSSS RESTARTED
12:39:50	508	0.06	0	-	0	0		NOISE			FL110
12:40:55	500	0.06	0	-	0	0		NOISE			FL100
12:42:03	686	0.06	0	-	0	0		NOISE			FL090
12:43:05	450	0.06	0	-	0	0		NOISE			FL080
12:44:18	504	0.06	0	-	0	0		NOISE			FL070
12:45:27	536	0.06	2	-	0	0		NOISE			5000FT
12:47:00	339	0.06	952	-	500	100	11	NOISE			
12:49:00	379	0.07	5487	-	59	800	3	29116	3200	3	FFSSP DATA FLOW PROBLEMS
12:51:00	579	0.25	10209	-	263	800	3	16000	3200	3	
12:53:00	766	0.34	14489	-	299	800	3	16000	2400	3	
12:56:00	203	0.20	5	-	115	800	3,8	12000	2400	3	
12:58:00	156	0.15	24	-	130	625	8	6866	2400	3,8	FFSSP DATA FLOW PROBLEMS
13:00:00	279	0.29	92	-	87.5	800	3,8	6975	2000	3,8	ICING
13:02:00	518	0.34	118	-	72	775	3	12900	3200	3	FFSSP DATA FLOW PROBLEMS

CLOUD PHYSICS LOG

Flight No. B275 **Date: 03/03/07** **Operator: KFT** **Page 3 of 3**

G.M.T.	PCASP		FSSP	SID1	2D2-C			2D2-P			Remarks
DRS Time	Conc/cc	Mean R	Block Transfer	Particle Count	Conc/L	Max Size	Habit	Conc/m3	Max Size	Habit	
13:06:00	134	0.27	2	-	55	800	3	4450	1600	3	FFSSP RESTARTED
13:08:00	1247	0.32	40	-	179	800	3	12000	4800	3	
13:10:00	602	0.39	104	-	119	800	3,8	8716	3200	3	FFSSP RESTARTED
13:14:00	195	0.24	2	-	70	800	3,8,7	5508	1600	3	
13:16:00	927	0.40	17	-	495	800	3	21400	4800	3	
13:18:00	48	0.05	106	-	65	625	8	6816	3200	3,8	
13:20:00	286	0.06	112	-	50	800	8		3200	3	
13:22:00	41	0.05	118	-	0	0		0	0		
13:24:00	32	0.06	131	-	129	125	11,8		2400	8	
13:26:00	55	0.06	132	-	0	0		0	0		
13:28:00	38	0.06	133	-	2	800	3	258	2400	3	
13:30:38	37	0.07	144	-	0	0		0	0		END RUN
13:32:00	60	0.06	144	-	0	0		0	0		
13:34:00	48	0.06	144	-	0	0		0	0		
13:36:00	51	0.07	149	-	0	0		0	0		
13:38:00	69	0.27	163	-	52	800	3,8	350	3200	3,8	
13:40:00	180	0.44	212	-	293	800	3,8	3258	3200	3,8	
13:42:00	466	0.44	278	-	125	800	8,3	550	2400	8	
13:44:00	108	0.11	334	-	175	800	3	21100	4800	3	
13:46:00	710	0.42	428	-	236	800	3	15340	3200	3	
13:48:00	256	0.47	465	-	1069	800	3,8	16800	3200	3,8	
13:50:00	953	0.45	510	-	75	800	3,8	13988	3200	3,8	
13:52:00	100	0.32	558	-	38	800	3,8	2325	2400	3,8	
13:54:00	55	0.06	560	-	0	0		0	0		
14:10:00	108	0.07	569	-	25	725	3	6216	1200	3	
14:25								Data rate 1Hz			
14:34											FFSSP base values increased
14:38											FFSSP base values icreased
15:00:00	49	0.07	583	-	34	275	8,11	NOISE			FL210 transit back to BIKF
15:04:00	57	0.06	585	-	11	400	9,8	NOISE			
15:10:00	91	0.06	597	-	45	375	9,8	NOISE			
15:15:00	76	0.06	605	-	18	350	9,8	NOISE			

Revision date: 15/03/2007 2:09 PM

CLOUD PHYSICS PROCESSING LOG

Flight number: **B275** **T/O:** 09:39:38
Date of flight: 03/03/07 **Land:** 15:36:46

A) FFSSP PROCESSING To Exeter		
Processing Stage	Done?	Comments
1) Transfer *.txt files from DVD to processing PC		
Bnnn_FFSSP_hh.txt for each hour of data Bnnn_FFSSP_HVMS.txt		**hh =** **Last sec processed =**
2) FTP the files (ascii) from the PC to directory PMSDATA: on FLOODS		**File size =**
3) FLOODS> **RUN MRFB:[PMS.FAST_FSSP]FSSP_EXTRACT_TAS** a) Flight number: **Bnnn** b) Path name: **MFDDATA:Bnnn_MFDX** c) Output directory: **PMSDATA:** d) Start time: *0 if unknown (see comment box)* e) End time: *240000 if unknown*		Use time just before/after take-off/landing. If T/O /landing just after/before the hour, ensure start/end time is before/after the hour if there is an FFSSP_hh.txt file for that hour.
4) FLOODS> **RUN MRFB:[PMS.FAST_FSSP]FFSSP_PROCESS_TXT** a) Flight number: **Bnnn** b) Directory: **PMSDATA:** c) TAS in processing: **Y** d) Vel threshold (clicks) **0** e) Calibration file: *Use the most recent calibration file.* Format FFSSP_CALddmmyyyy.txt Calibration files to be stored in MRFB:[PMS.FAST_FSSP] f) Adjust FFSSP time **Y/N** g) If Y, enter value to add to data time (seconds)		**Total glitches =** **Sec file written ok?** **Note calibration file used** Yes only if gross errors occur in FFSSP time eg; ~ 1hour
5) FLOODS> **WAVE** a) WAVE> **write_procffssp_to_m5,'pmsdata:Bnnn_procffssp.dat', 'mfddata:Bnnn_mfdX','pmsdata:Bnnn_m5procffssp',/auto** b) WAVE> **exit**		Use PVWAVE for this section **Note time correction applied to FFSSP by /auto =**
6) FLOODS> **MODIFY** a) Modifying datasets: **pmsdata:Bnnn_m5procffssp** b) Dataset: **mfddata:Bnnn_mfdX** c) New dataset: **mfddata:Bnnn_mfdY (y=x+1)** d) Parameter description file: *leave blank to use default*		**Input file size =** **M5 output file size =**
7) CHECKS: i). Are FFSSP and JW/Nevzorov LWC synchronized in time? *In flight_plot, parameters* *JW LWC para 535* *Nevzorov LWC para 602* *FFSSP LWC para 1202* ii). If not, repeat from step 5b replacing /auto with **addt=x** which adds x+20 secs to FFSSP time.		**Synchronized?**

CLOUD PHYSICS PROCESSING LOG

Flight number: **B275**
Date of Flight: 03/03/07

B) 2D PROCESSING		REPROCESS +1hr
Processing Stage	Done?	Comments
1) Transfer Bnnn.dat file from CD/DVD to PC	Y	
2) Zip up file on PC (Bnnn.zip)	Y	
3) FTP the zipped file (binary) from the PC to the directory SEADAS_DATA:[SEADAS_DATA] on FLOODS	Y	52956 blocks
4) Log on to FLOODS		
5) Unzip SEADAS_DATA:[SEADAS_DATA]Bnnn.zip	Y	**Size of Bnnn.dat = 420416**
6) FLOODS> **WAVE**	Y	Use PVWAVE for this section
WAVE> **CONVERT_SEADAS_FILE** a) Input file: **SEADAS_DATA:[SEADAS_DATA]Bnnn.dat** b) Output file: **SEADAS_DATA:[SEADAS_DATA]Bnnn_seadas.dat** WAVE> **exit**		**Blocks read = 77506** **Blocks written = 77506** **Bad reads = 0**
7) FLOODS> **RUN MRFB:[PMS.SEADAS]READM200_FILE**	Y	
a) Default directory: **PMSDATA:** b) Flight number: **Bnnn** c) Disk file name: **SEADAS_DATA:[SEADAS_DATA]Bnnn_seadas.dat** d) Comment string: e) Start time: *0 if unknown (T/O – 5 min)* f) End time: *240000 if unknown (Land + 5 min)* g) Read 2DC: **Y** h) Read 2DP: **Y** i) Secondary data: **Y** j) FSP-SYNC: **Y** k) cmd.str: **Y** l) Auto time correction: **N** m) Full length secondary:**N**		**Start = 093500** **End = 153500** Ignore error message scroll (vestigial error from tapes) **Are FRW, FSP, IMB, PCA,SEC files in PMSDATA? Y** **Are they non-zero in size? Y**
8) FLOODS> **WAVE**	Y	2D image display and printing
i). WAVE> **imagedisplay** a) 2D directory name: **PMSDATA:** b) Flight number: **Bnnn** c) File generation no: **0** d) Time from IWC plot: **N** e) Select probe: (**1**) 2DC (**2**) 2DP f) Start time: *As in 7e above* g) End time: *As in 7f above* h) Time interval (sec): **5** recommended (0 for all images)		Must be done from FLOODS itself. **Note any problems with images** 2DP images from 124700 to 142800. Else noise.
ii). WAVE> **auto_image** a) 2D directory name: **PMSDATA:** b) Flight number: **Bnnn** c) Enter date: **YYYYMMDD** d) Enter start time: *0 if unknown (T/O – 1 min)* e) Enter end time: *240000 if unknown (Land – 1 min)* f) Enter time interval (sec) between successive imaged blocks: **10**		Prepare imagery for Core data From own PC again **Start = 084000, (124500 2DP)** **End = 153500, (143000 2DP)**
iii). WAVE> **exit** to create files		FAAM_YYYYMMDD_R0_ Bnnn_2Dx-images.ps
iv). FTP ascii *.PS files from PMSDATA: to PC		Notes on this in instructions
v). Load each into Ghostview or other pdf-converter		
vi). Output as pdf file (720 dpi resolution), appending name prefix of **CORE-CLOUD-PHY**_ to converted files		

9) FLOODS> **RUN MRFB:[PMS.SPEC2D.AUTO]PROCESS2D_AUTO** a) Flight number: **Bnnn** b) Directory: **PMSDATA:** c) File generation: *Hit enter* d) Time correction: *Time offset of the 2D data* e) TAS: **Y** f) MFD directory: **MFDDATA:Bnnn_MFDX** g) Probe number: (**1**) 2DC (**2**) 2DP (**0**) Both *0 unless either probe known to be faulty* h) Start time: *0 if unknown (T/O + 30sec)* i) End time: *240000 if unknown (Land – 30sec)* j) Nominal averaging: **0.2** seconds for conversion to M5 k) Particle type 2DC: **8** if known to be in ice cloud **11** if known to be in water cloud l) Particle type 2DP: **8** if known to be in mixed-phase **8** if unknown m) Coefficient choice: **2** n) Output root filename: **PMSDATA:Bnnn_PROC2D**	Y	NB. an error message may appear, floating point exception, rerun and use time quoted in error message, repeat until successful. **X =** **Start = 093500** **End =** 153500 **Time data processed to =** 153500 **2dproc files present? Y** *.2dc, *.2dp and *.dat
10) FLOODS> **WAVE** i) WAVE> **WRITE_PROC2D_TO_M5, 'PMSDATA:BNNN_PROC2D.DAT', 'PMSDATA:BNNN_M5PROC2D'** ii). **exit**	**Y**	Use PVWAVE for this section Error message about HDDR file should be ignored. **Records = 12956, 178**
11) FLOODS> **MODIFY** a) Modifying datasets: **pmsdata:Bnnn_m5proc2D** b) Datset: **mfddata:Bnnn_mfdX** c) New dataset: **mfddata:Bnnn_mfdY** d) Parameter description file: leave blank to use default	**Y**	**X = A** **Y = (X+1) = B**
12) CHECKS: Are 2DC/2DP IWC of comparable magnitude and well-correlated with Nevzorov TWC? *In flight_plot, parameters* *Nevzerov TWC para 605* *2DC IWC para 1302* *2DP IWC para 1312*	Y	**Correlated? Y**

CLOUD PHYSICS PROCESSING LOG

Flight number: **B275**
Date of Flight: 03/03/07

C) PCASP PROCESSING		
Processing Stage	Done?	Comments
1) Complete stage 7) in 2D processing Ensures Bnnn_FSP.DAT containing raw PCASP data is written to directory PMSDATA:	Y	
2) FLOODS> **RUN MRFB:[PMS.PCASP]PROCPCASP_NEW**	Y	
a) Flight number: **Bnnn** b) File name: **PMSDATA:Bnnn_FSP.DAT** c) Root output name: **PMSDATA:Bnnn_PROCPCASP** Produces PMSDATA:Bnnn_PROCPCASP.DAT (binary) PMSDATA:Bnnn_PROCPCASP.OUT (ascii) d) Minimum size channel: *default = 1* *If smallest size channel are known to be noisy the value of the highest noise free channel to be entered here* e) Calibration volume flow rate: *Use the most recent value. 1.8ccs^{-1}* *Calibration files to be stored in **Exeter*** *Entering zero gives default value = 1.0 cm^{3}s^{-1}* f) Time correction: *Same value as used in 2D processing stage 9d* g) Start time: *0 if unknown* h) End time: *240000 if unknown*		**Min size = 1** **Vol flow rate =** 1.15 093500 143500
3) FLOODS> **WAVE**	Y	Use PVWAVE for this section
i).WAVE> **write_procpcasp_to_m5,** **'pmsdata:Bnnn_procpcasp.dat',** **'pmsdata:Bnnn_m5procpcasp'** ii). WAVE> **exit**		
4) FLOODS> **MODIFY**	Y	
a) Modifying datasets: **pmsdata:Bnnn_m5procpcasp** b) Dataset: **mfddata:Bnnn_mfdX** c) New dataset: **mfddata:Bnnn_mfdY** d) Parameter description file: *leave blank to use default*		**X = B** **Y = X+1 = C**
5) CHECKS	Y	
Are PCASP and JW peaks synchronous? *In flight_plot, parameters* *Neph – total blue scatter.* *PCASP conc para 1550*		**Merged OK? Y**

FAAM Dropsonde Flight Log

Flight No.	B275	Date	03/03/2007
Page No.	1 of 2	Operator	SWH

GMT	Sonde No.	Event	Comments
		e.g. launch, splashdown	*e.g. windata? PTH data? Lat/Long*
103301	1	Launch	392.61 -1.54 1.59 85.88 47.47 2.36 -32.015896 62.476316 7878.98 6
104125	1	Land	975.06 2.25 85.94 163.85 6.26 -10.65 -32.094506 62.527514 649.25 9
104948	2	Launch	359.81 -2.28 1.08 64.58 84.99 0.04 -34.973035 61.832486 8458.66 4
105903	2	Land	977.04 -0.79 57.75 217.05 5.66 -10.91 -35.097600 61.847313 736.32 8
105844	3	Launch	360.23 -9.13 1.12 88.73 36.67 -0.01 -36.524483 61.423933 8471.75 3
110759	3	Land	976.48 -2.72 86.14 159.92 5.97 -10.32 -36.649756 61.418645 752.57 9
110750	4	Launch	359.81 -6.20 0.84 35.04 52.78 2.22 -37.991965 61.007718 8443.40 6
111619	4	Land	969.97 -2.44 91.10 66.37 22.41 -11.53 -38.142086 60.937718 772.24 6
111309	5	Launch	360.00 -4.79 0.98 72.90 34.45 0.03 -38.842596 60.732071 8438.28 3
112207	5	Land	972.36 1.43 58.05 349.43 17.54 -9.84 -38.881278 60.630650 769.70 6
111758	6	Launch	360.40 -6.69 0.64 134.08 70.38 0.18 -39.574520 60.491081 8354.18 4
112651	6	Land	978.22 -3.18 95.97 318.52 30.10 -11.37 -39.566376 60.388208 762.99 6
112246	7	Launch	359.97 -2.93 1.19 55.28 66.07 0.02 -40.293786 60.246816 8539.43 3
113202	7	Land	984.42 -5.13 91.59 309.30 28.29 -11.05 -40.275887 60.151613 757.73 7
112730	8	Launch	361.10 -12.31 0.69 3.75 87.98 0.14 -41.004523 59.997976 8282.23 4
113631	8	Land	988.06 -3.53 66.87 333.69 15.21 -9.85 -40.990704 59.924092 747.14 8
115235	9	Launch	360.29 -6.84 0.48 260.56 21.75 0.01 -40.985641 61.824232 8360.64 6
120145	9	Land	986.93 -6.30 89.10 348.51 26.00 -10.92 -41.049235 61.758186 733.53 7
115827	10	Launch	360.17 -8.72 0.77 294.89 59.58 0.02 -40.061931 61.605504 8330.85 4
120749	10	Land	983.48 -2.47 92.16 0.37 20.50 -10.53 -40.145958 61.525309 739.76 8
120230	11	Launch	360.22 -15.24 0.51 308.22 19.75 -0.02 -39.416978 61.442897 8249.18 4
121148	11	Land	980.17 -1.88 93.49 9.99 24.48 -10.11 -39.525910 61.355731 747.82 8
120654	12	Launch	360.41 -8.82 0.65 298.98 36.93 0.01 -38.719009 61.261536 8547.98 3
121542	12	Land	977.80 -1.73 88.99 31.18 15.62 -11.78 -38.817752 61.185908 751.45 6
121124	13	Launch	360.01 -5.94 1.27 302.73 17.73 -11.47 -38.025560 61.075880 8480.67 7
122020	13	Land	974.97 -0.94 75.97 37.42 13.65 -11.08 -38.162409 61.010035 765.46 6
121554	14	Launch	358.61 -13.95 1.42 285.68 52.45 0.11 -37.339580 60.886890 8484.23 6
122438	14	Land	972.90 -2.39 75.26 110.60 13.12 -11.70 -37.461854 60.857557 780.21 8

122021	15	Launch	360.44 -13.74 1.21 301.42 10.00 0.00 -36.664661 60.694418 8426.48 3
122912	15	Land	974.21 -2.78 74.73 150.89 10.32 -11.72 -36.697999 60.703553 775.26 7
122447	16	Launch	360.40 -11.50 1.09 283.46 20.35 -0.01 -35.997973 60.496672 8278.13 5
123344	16	Land	976.50 -3.84 85.29 187.70 7.38 -10.92 -35.991339 60.517907 774.67 8

Flight: B275

KEY

- Not Fitted
- Fitted, Not Operated
- Duff Data
- Minor Problems
- OK

Thermometers
- Cabin Temperature:
- Heimann:
- Deiced Temp:
- Non-deiced Temp:

Hygrometers
- FWVS:
- General Eastern:
- Johnson Williams:
- Nevzorov:
- Total Water Probe:

Cameras
- Downward Facing:
- Forward Facing:
- Rearward Facing:
- Upward Facing:

Navigation + Aircraft
- Cruciform GPS:
- GIN Applanix:
- INU Honeywell:
- Radar Altimeter:
- RVSM IAS:
- RVSM Static Pressure:
- XR5 GPS:

Report Created 15/03/2007 12:13:36

Misc Core
- AMTG:
- AVAPS:
- Cabin Pressure:
- Fax machine:
- Printer:
- S9 Static Pressure:
- Satcom C:
- Satcom H:
- Turb Centre-Static:
- Turb Left Right:
- Turb Up-Down:
- Turb Horizontal Chk:
- Turb Vertical Chk:
- Weather Radar:

DLUs:
- DLU AERACK:
- DLU BBR Lower:
- DLU BBR Upper:
- DLU Core Chem:
- DLU Core Consoles:
- DLU Port Aft:
- DLU Port Fwd:
- DLU Stbd Fwd:

Radiometers
Lower:
- BBR (clear) Lower:
- BBR (IR) Lower:
- BBR (red) Lower:

Upper:
- BBR (clear) Upper:
- BBR (IR) Upper:
- BBR (red) Upper:

- ARIES:
- DEIMOS:
- IR Camera:
- JNO2 Lower:
- JNO2 Upper:
- JO1D Lower:
- JO1D Upper:
- MARSS:
- SHIMS Lower:
- SHIMS Upper:
- SWS:
- TAFTS:

Last Updated: 14/03/2007 15:55:36

Cloud Probes
- 2DC:
- 2DP:
- FFSSP:
- PCASP:

- ADA:
- CCN:
- CDP:
- CIP 100:
- CIP 25:
- CPI:
- CVI:
- SID1:
- SID2:

Aerosol
- CPC 3025A:
- Filters 47mm:
- Filters 90mm:
- Neph - Dry:
- Neph - Wet:
- PSAP:
- AMS:
- CPC 3025 (AMS)
- INC:
- VACC:
- CPC 3010A (CVI):

Chemistry
- CO Aerolaser 5002:
- NOx TE42C:
- Ozone TE49C:
- Ozone TE49:
- SO2 TE43C:
- TDLAS (NIR) CH4:
- TDLAS (NIR) CO2:

- FAGE:
- Formaldehyde:
- NOxy:
- ORAC:
- PAN:
- PERCA:
- Peroxide:
- PTRMS:
- TDLAS (1C):
- WAS Bags:
- WAS Bottles:

Misc Non-Core
- CASI/ATM:
- LIDAR:
- LTI:
- SAW Hygrometer:

Faults / Incidents Log

Flight No. B275
Date: 03 March 2007

Instruments

1. INU – wouldn't come out of standby pre-flight. Restarted then okay.

2. FM Display – lots of problems dipslaying plots. Header info appears as all 0's and graph not plotted.

3. FM pc – Tried to install ASPEN software sdfjsldjf;slkdfjkl;sdf

Aircraft

1. Engines x 4 washed pre-flight in the hangar to clear salt build up.

Satcom-H Calls

Nil

Post Flight - Turb Probe Water Traps

1. Indicate Amount of Water: a) Nil b) 1-2 drops c) ¼ full or more d) Ice present
2. Emptied by:
3. Dried by:

Pre-Flighter's Log

Date: 3/3/07 Flight No: B275 Pre-Flighter: AMW

No.	√ or x	Location	Action	Comments
1	✓	Hangar	Collect Dustbin, put on a/c	
		Aircraft Cabin: Power-up		
2	✓	Core Chemistry	Gases x 3 ON	
3	✓	Cabin	All Racks Checked	
4	✓	Fwd CorCon	All reqd CBs made	
5	✓	Aft CorCon	CBs made, PCs ON	
6	✓	HORACE	Optical Disk loaded	
7	✓	HORACE	Recording data	
8	✓	HORACE	DLU Status Checked	
9	✓	HORACE	HORACE Status Checked	
10	✓	Satcom H	Power LED ON	
11	✓	Nevzorov	Checked and OFF	
12		GPS	Checked	NO fix
13	✓	INU	Align	TO GPS W-ORDS BELOW. ✓
14	✓	Cameras Pictures	Checked x 4 OK	NO TIMES
15	✓	Core Chemistry	Instruments Checked OK	
16	✓	Core Chemistry	CO Flows Checked OK	
17	—	FWVS	Set up	
18	✓	Video x 2	Records okay, Rewind	
19	✓	Delced Rosemount	Heater Checked / Set	
20	✓	Heimann	Calibration Checked	
21	✓	TWC	ON & Checked	
22	✓	GE	Balance checked	
23	—	INU	Navigate then back to Align	
24	✓	Hubs x 4	Checked ON	
25	✓	Fwd Console	Miss. Sci Laptop CB made	& CB on Port Fwd SSP
26	✓	CNC	Butanol filled	
27	✓	Dry Neph	Power up & Zero Cal	
28	✓	CGPS	Set up	
29	✓	Miss. Sci Laptop	Checked Onboard	
		Proceed to External Checks		

External Checks overleaf →

GPS

63 ° 58 . 46 N AT STARTUP

22 ° 35 . 60 W

Pre-Flighter's Log

No.	√ or x	Location	Action	Comments
		External Checks		
29	✓	Turb Probe	Clean if reqd, Photo taken	
30	✓	JW	Cleaned & Checked	
31	✓	DI Rosemount	Cleaned & Checked	
32	✓	NDI Rosemount	Cleaned & Checked	
33	✓	Nevzorov	Cleaned/windings checked	
34	✓	GE	Cleaned & Checked	
35	✓	Lower BBRs	Domes cleaned/checked	
36	✓	Camera Windows	Cleaned	
37	✓	Heimann	Lens checked OK	
38	✓	TWC Cover	Fitted if required	
39	✓	All other covers	Removed	
40	✓	Dustbin	Returned to hangar	
41		Tools	Check ALL in Toolkit	
42		Tools	Avalon informed	
		Avalon Checks		Signed
43		Upper BBRs Checked & Cleaned		
44		ICEX applied		
45	✓	Turb Probe - Traps emptied, detail contents -		a)Nil b)1-2 drops c)1/4 full or more
46	✓	Turb Probe - Traps dried and resealed		

Flight Manager's Data Processing Status

Flight No: B275 Date of flight: 03/03/07
Flight Manager: MS

Mfd data must be backed up within a week.
If it can't be done by the Cloud Physics Operator in that time the FM must back it up

On day of flight		
Action	**Link / Option**	**Date**
Update Database & Note BBR Fit	Database	5/3/07
Create Fltcons & check BBR fit	Option 9	4/3/07
Transfer & process Data	Option 2	4/3/07
Ftp qldata to BADC	project_spaces/faam/ quicklook	
Check Rawdata	flight_plot	4/3/07
Raw data to BADC	Option 7	5/3/07
Copy & Convert Fltsumm file	Copy from optical to fltsumm directory Set def fltsumm run tarexec:convert_summ	4/3/07
Edit Fltsumm/ send to BADC	Option 10	5/3/07
Copy Flight logs to Seagate	Flight Logs	5/3/07
Download photos, clear camera & email Doug	To Flight Logs and Turb Probe Photos	4/3/07
Ftp CGPS.bin file to BADC	project_spaces/faam/ javad_gps	5/3/07
Check MFDdata	flight_plot	4/3/07

On day after flight		
Action	**Link / Option**	**Date**
Ftp PSAP to FLOODS	Bnnn_psap_data	n/a
Merge PSAP into mfddata	wave .run mergepsap bnnn_mfda (b,c)	n/a
Record any MFD changes	edit mfddata:mfddata.txt	n/a
NETCDF to BADC	Option 4	4/3/07
Upload .nc from BADC	To USB stick (WS_FTP Pro)	5/3/07
Data quality check	Run Checkg on Linux pc	5/3/07
Ftp quality file to BADC	/incoming/faam/campaign-processed-core	5/3/07
Print out quality file	put in Faults Book	
Backup raw data to optical then to firesafe	Option 6	4/3/07
Backup mfd if Cloud Physics Operator can't	MFD Backup Instructions.doc	
Ftp mfd to BADC	Not yet set up	
Video tapes to PI or cupboard	Video Tape Log	5/3/07
Complete & save this form	**Data_Processing_ Logs**	5/3/07

MISSING LOG SHEETS:

The following log sheets are not available for flight B275:

Log	Reason
Core Chemistry	Pre flight only, unmanned operation on auto calibrate so no In Flight log

Document control

Revision	Date	Author	Comments
r0	20 Mar 2007	Doug Anderson	Initial version missing the above noted logs
r1			
r2			

VIDEO RECORDINGS:

3 x Forward Facing Cameras
3 x Down/Rearward Facing Cameras

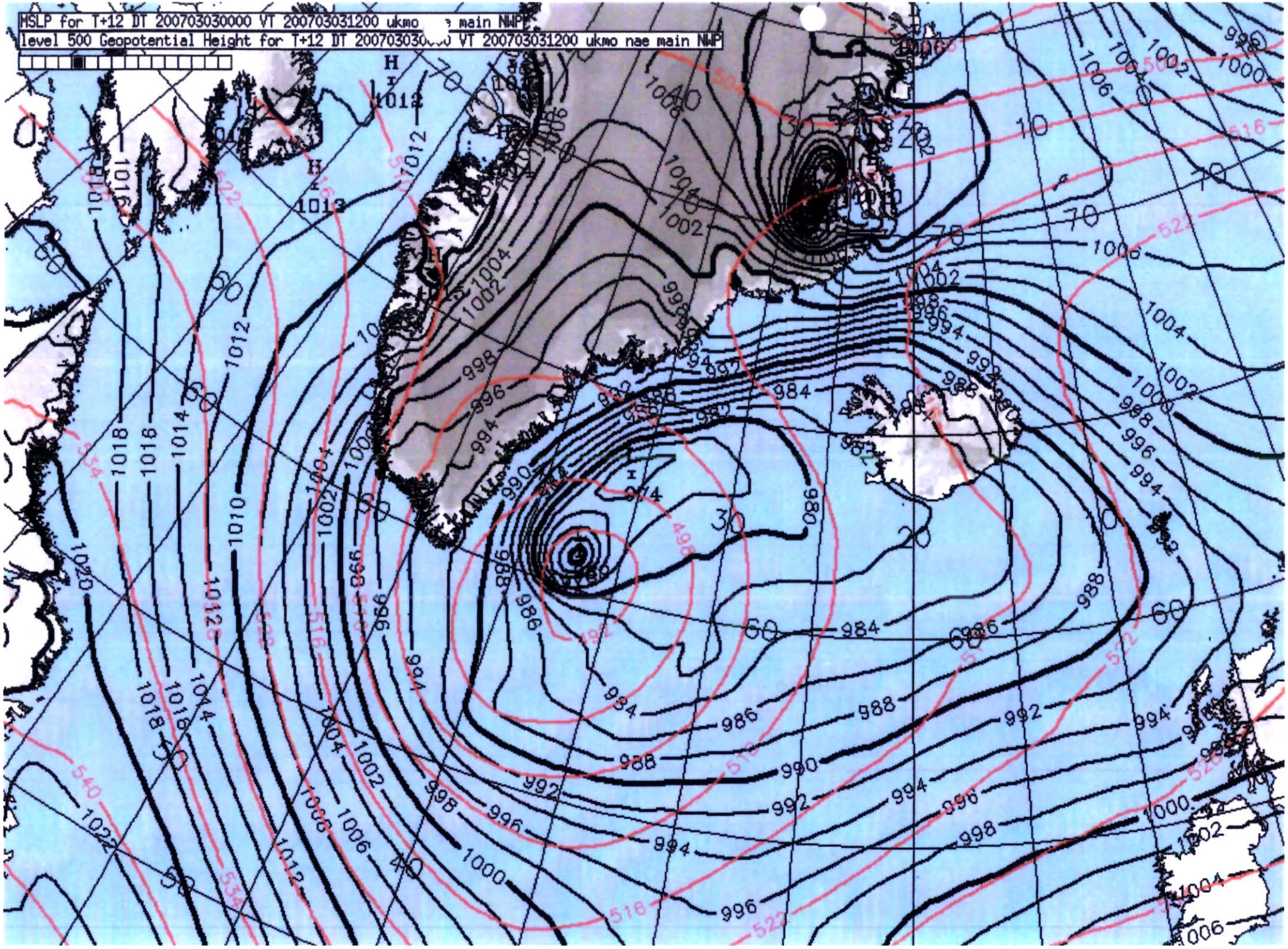
Digital8 video recordings from this flight reside with :

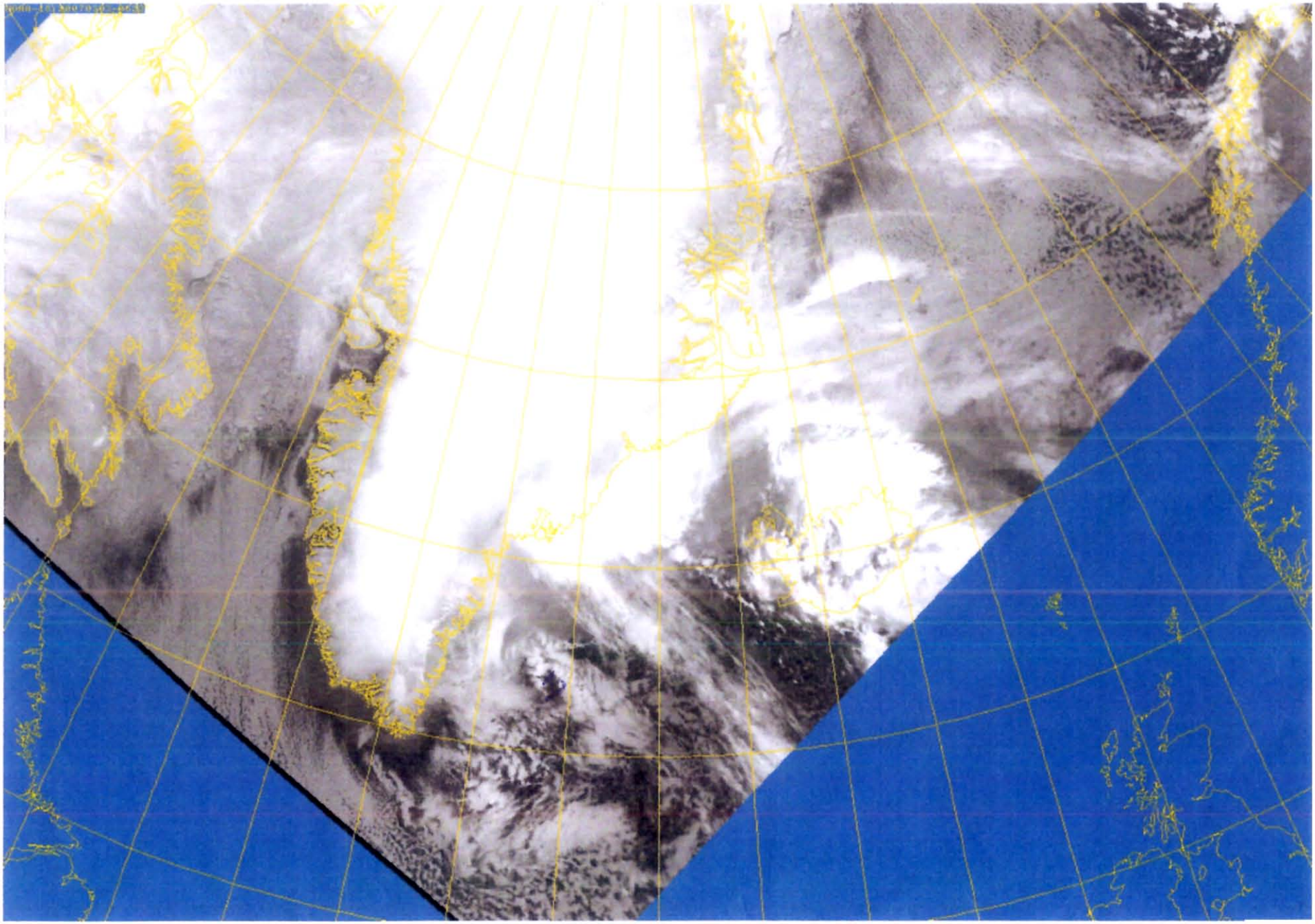
Dr Ian A. Renfrew

Dr Ian A. Renfrew
Reader in Climate System Dynamics
School of Environmental Sciences
University of East Anglia
Norwich, NR4 7TJ, United Kingdom
Room: 2.33

Tel: +44 (0) 1603 592557
Fax: +44 (0) 1603 591327

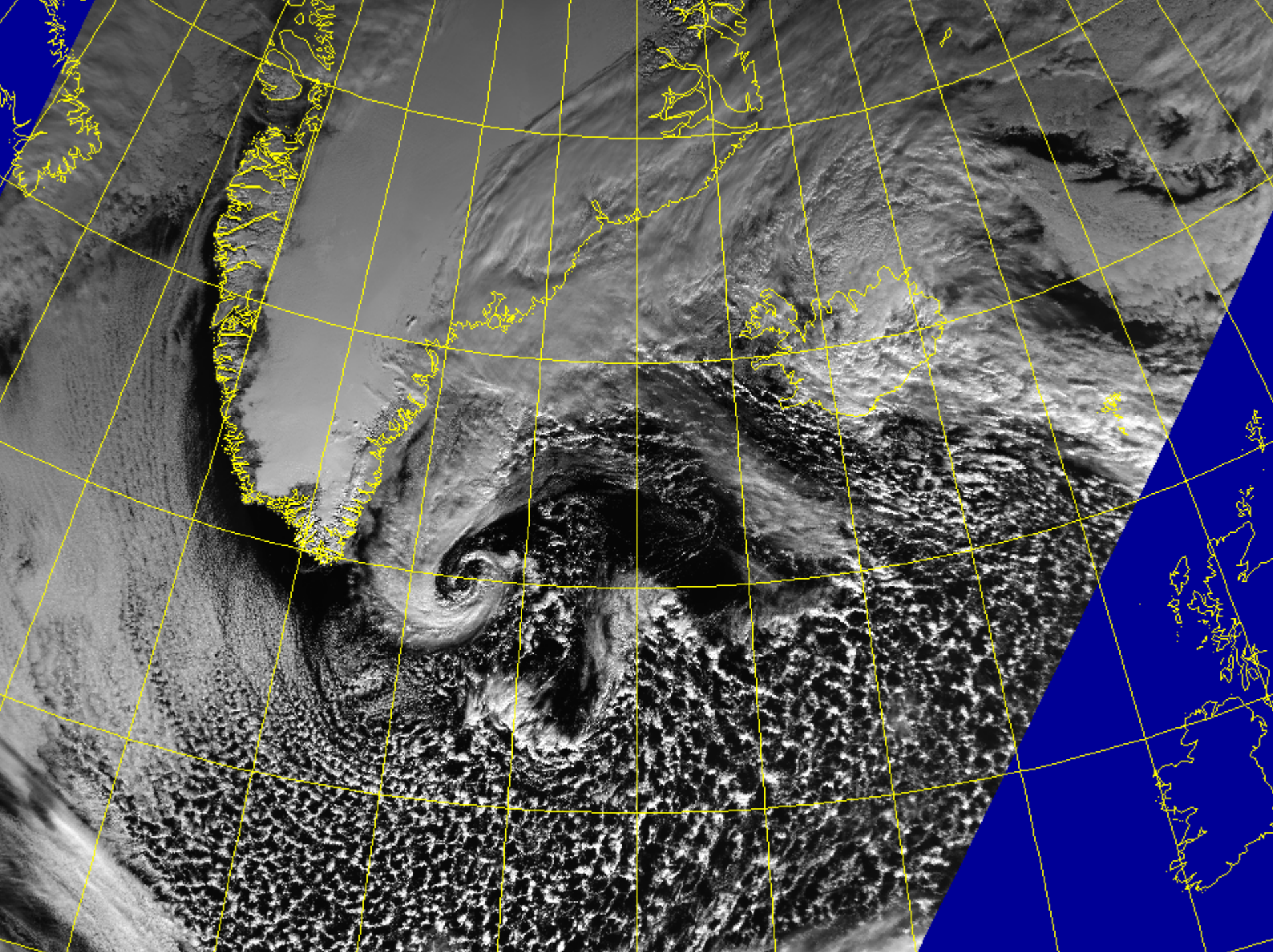
E-mail: i.renfrew@uea.ac.uk

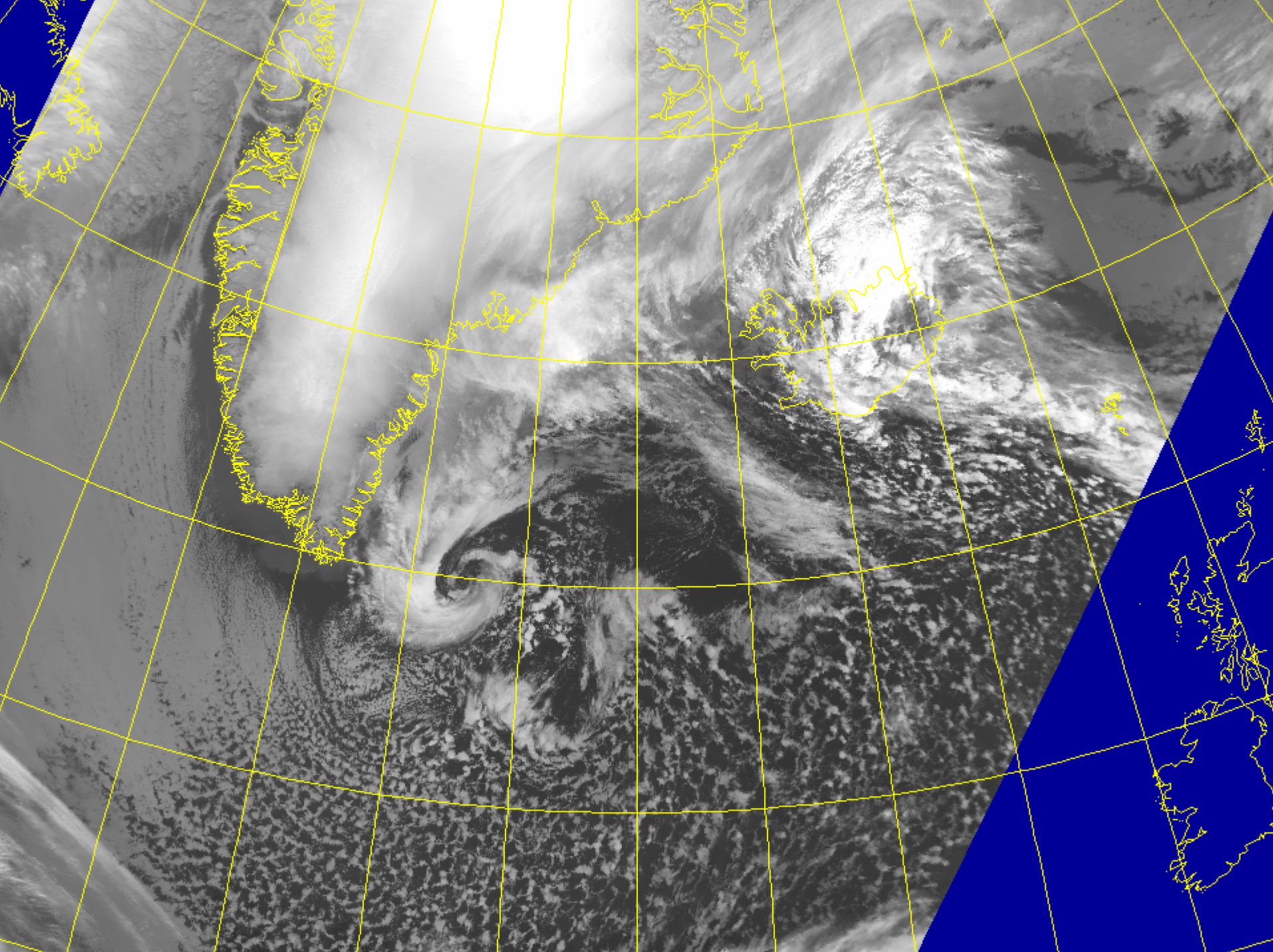

MSLP for T+12 DT 200703030000 VT 200703031200 ukmo main NWP
level 500 Geopotential Height for T+12 DT 200703030000 VT 200703031200 ukmo nae main NWP

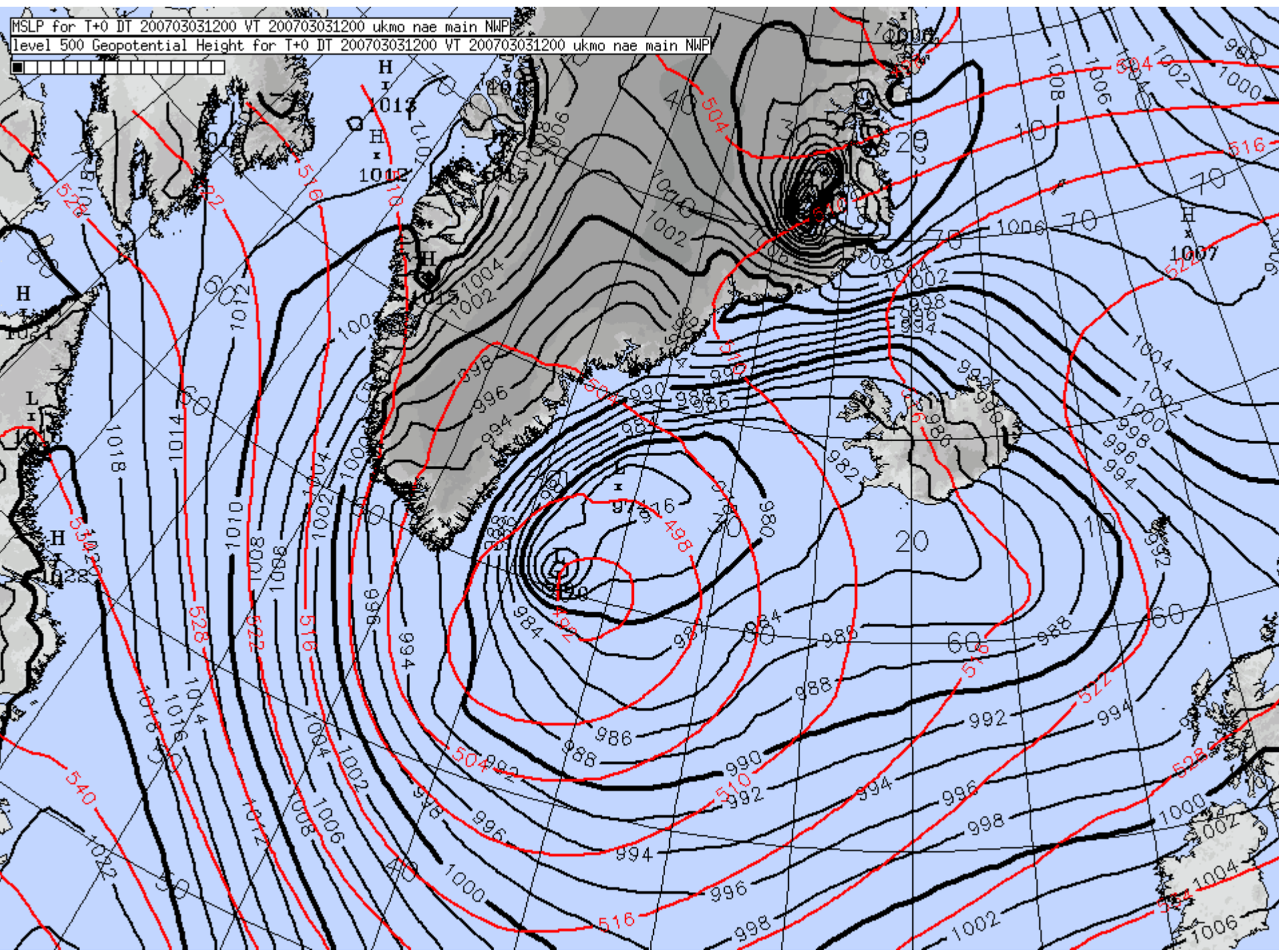


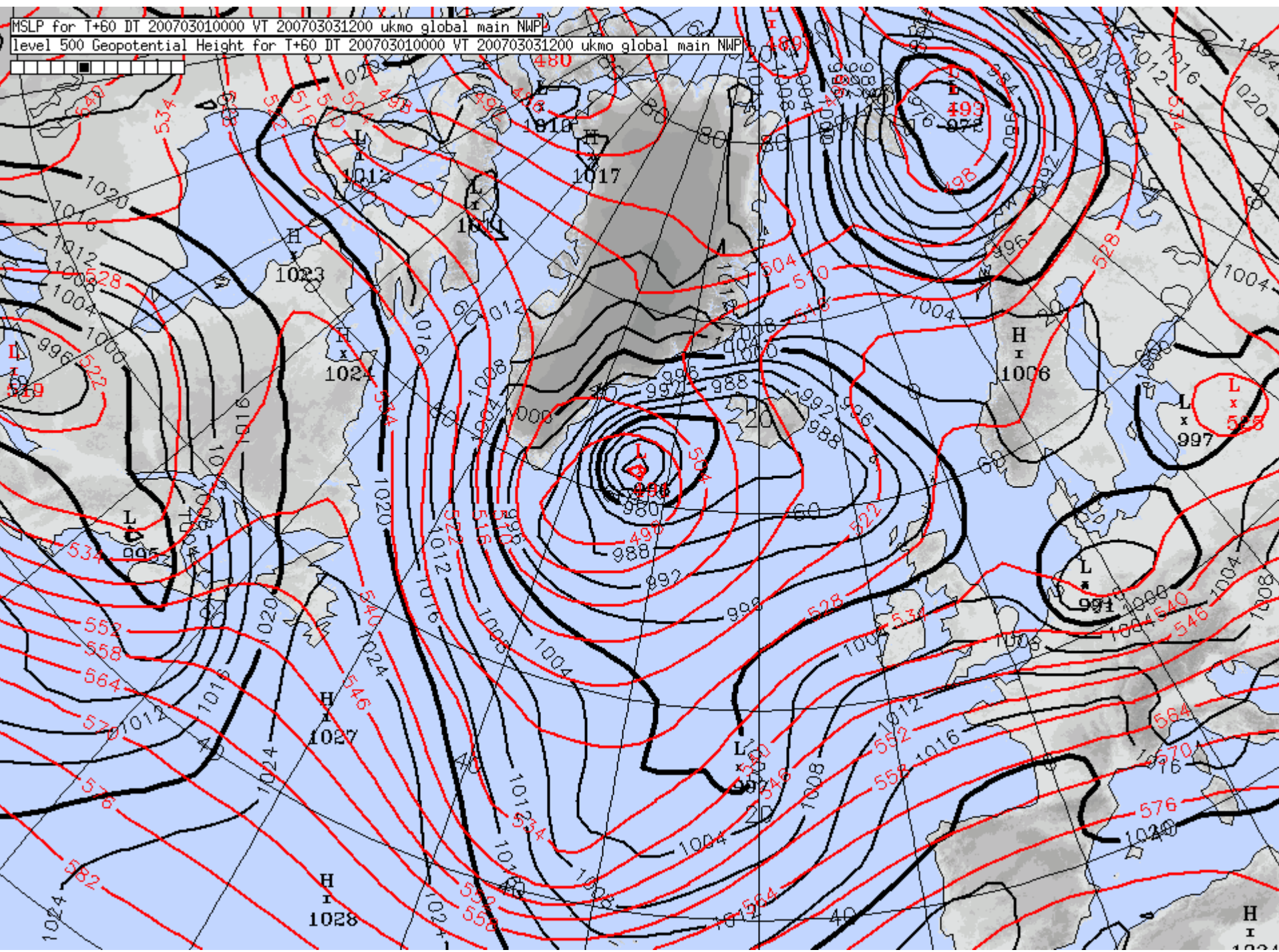
GFDex Weather Brief

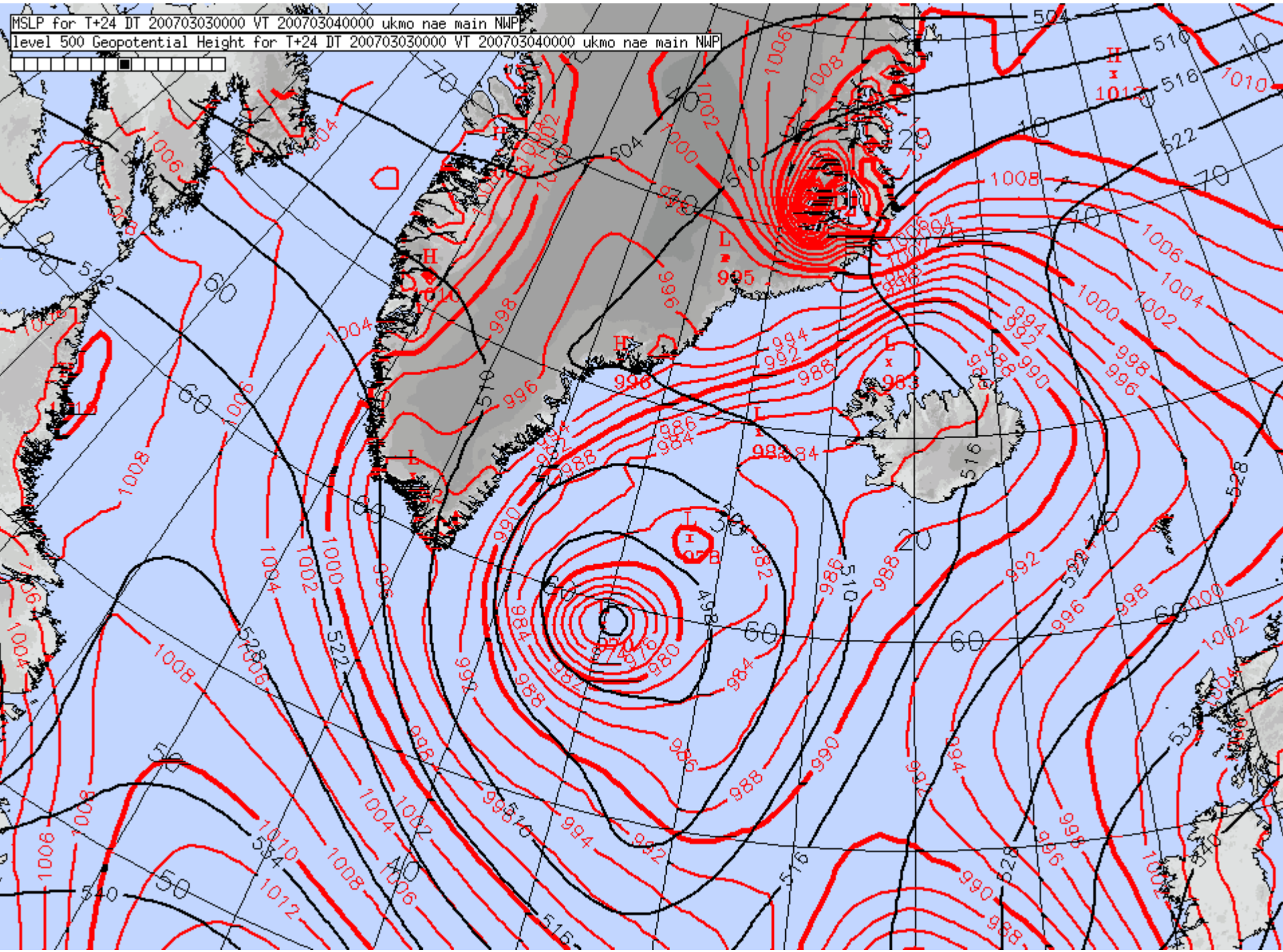
3rd March

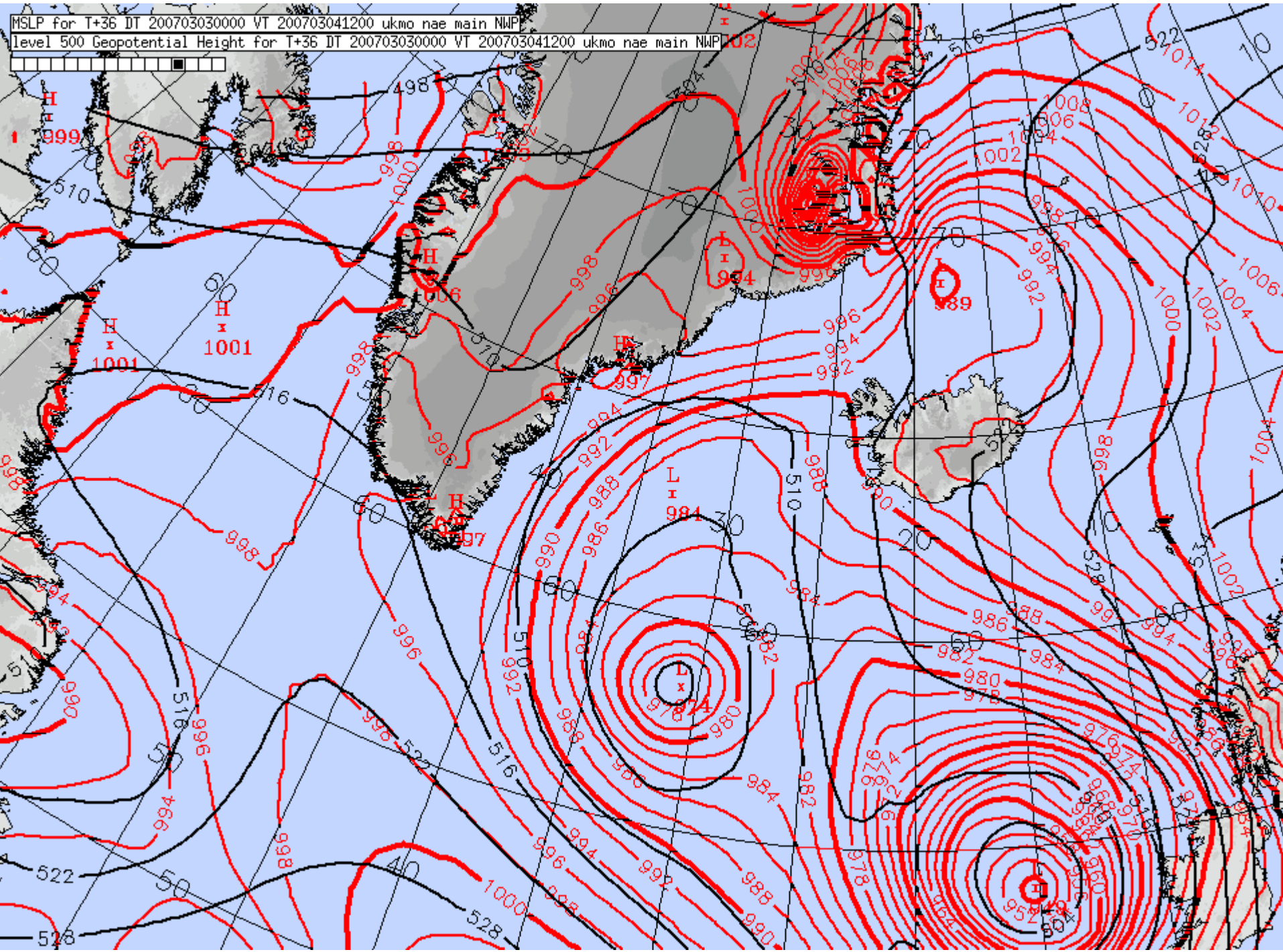


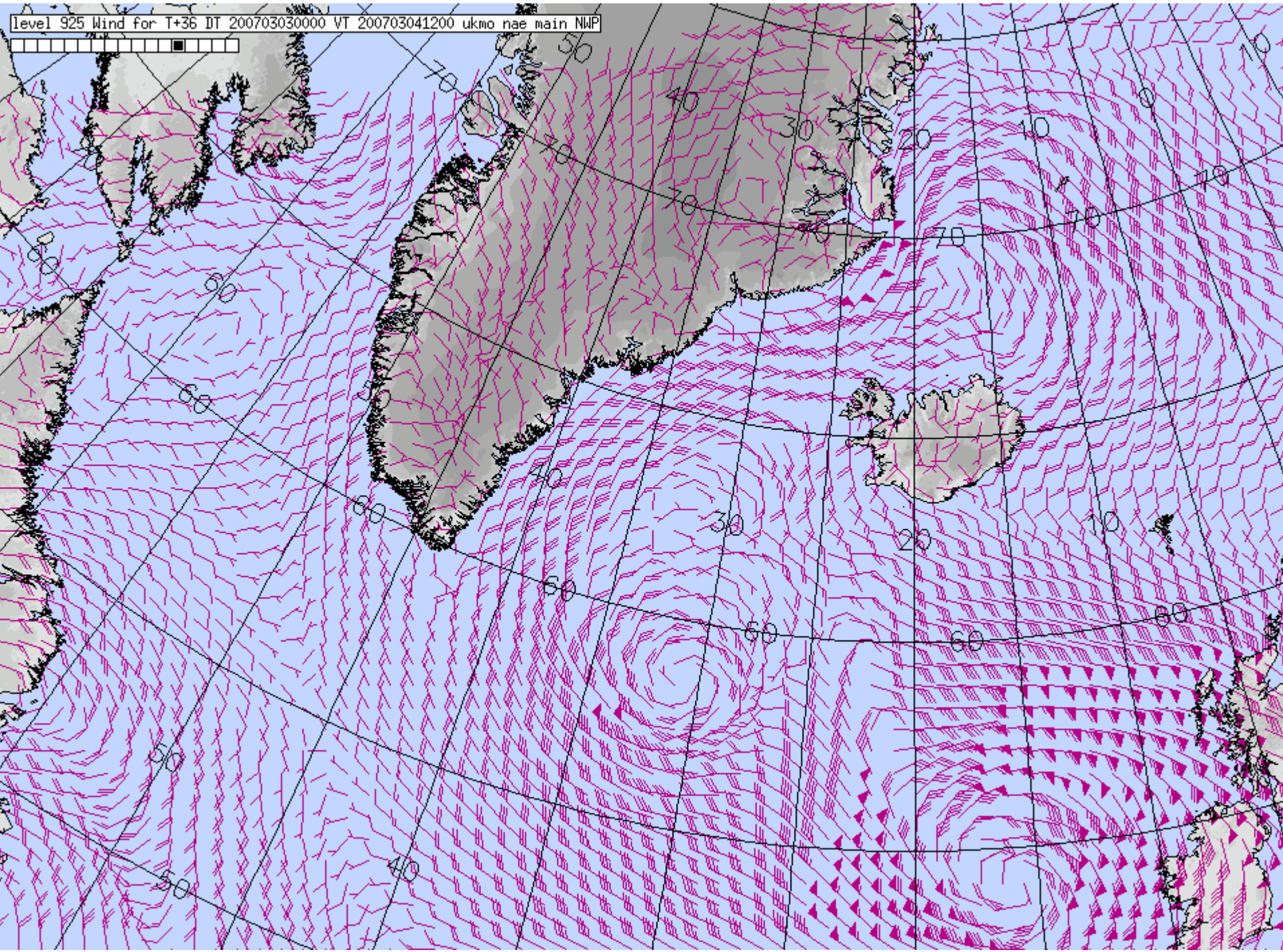


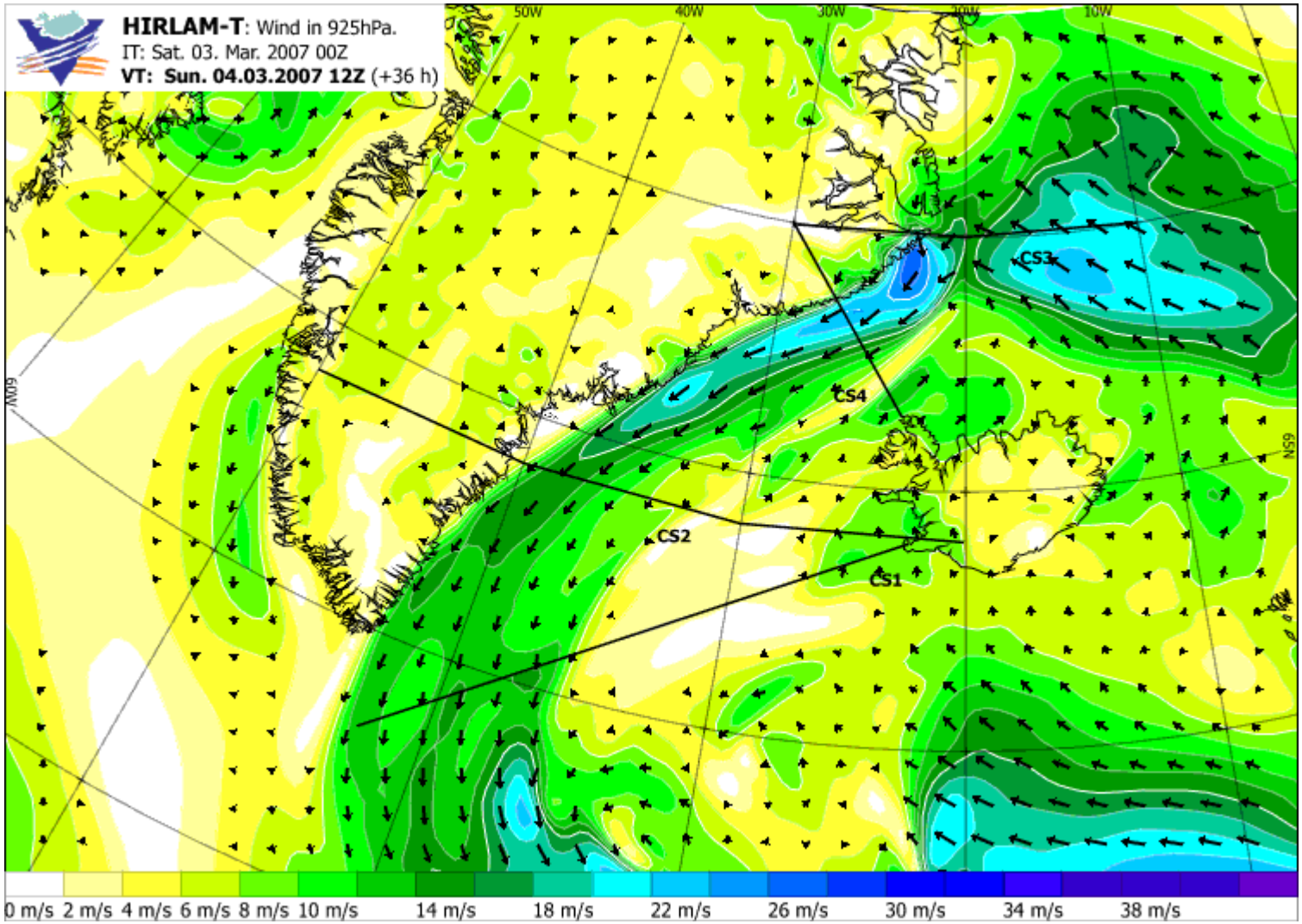

MSLP for T+0 DT 200703031200 VT 200703031200 ukmo nae main NWP
level 500 Geopotential Height for T+0 DT 200703031200 VT 200703031200 ukmo nae main NWP

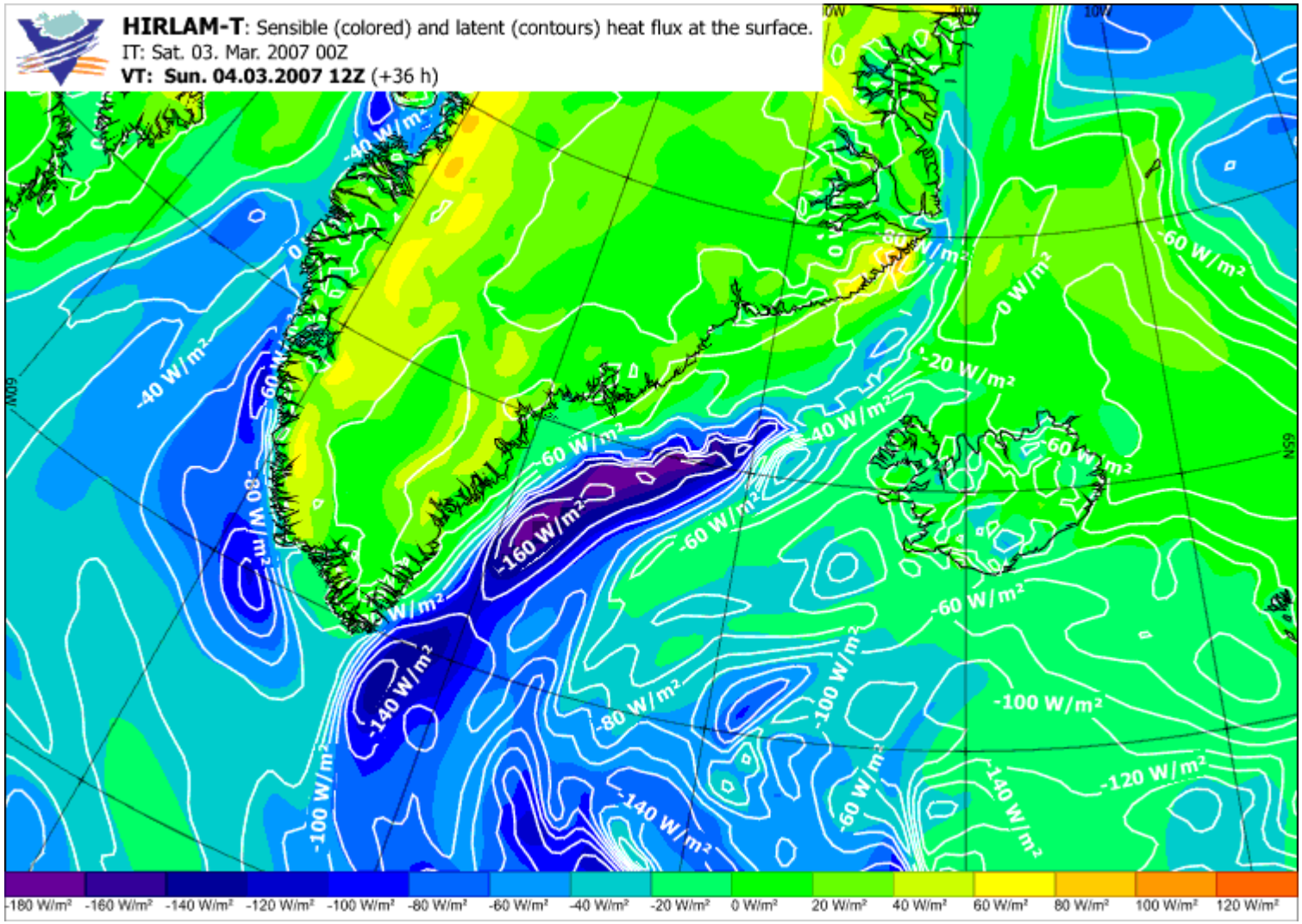

MSLP for T+60 DT 200703010000 VT 200703031200 ukmo global main NWP
level 500 Geopotential Height for T+60 DT 200703010000 VT 200703031200 ukmo global main NWP


MSLP for T+24 DT 200703030000 VT 200703040000 ukmo nae main NWP
level 500 Geopotential Height for T+24 DT 200703030000 VT 200703040000 ukmo nae main NWP

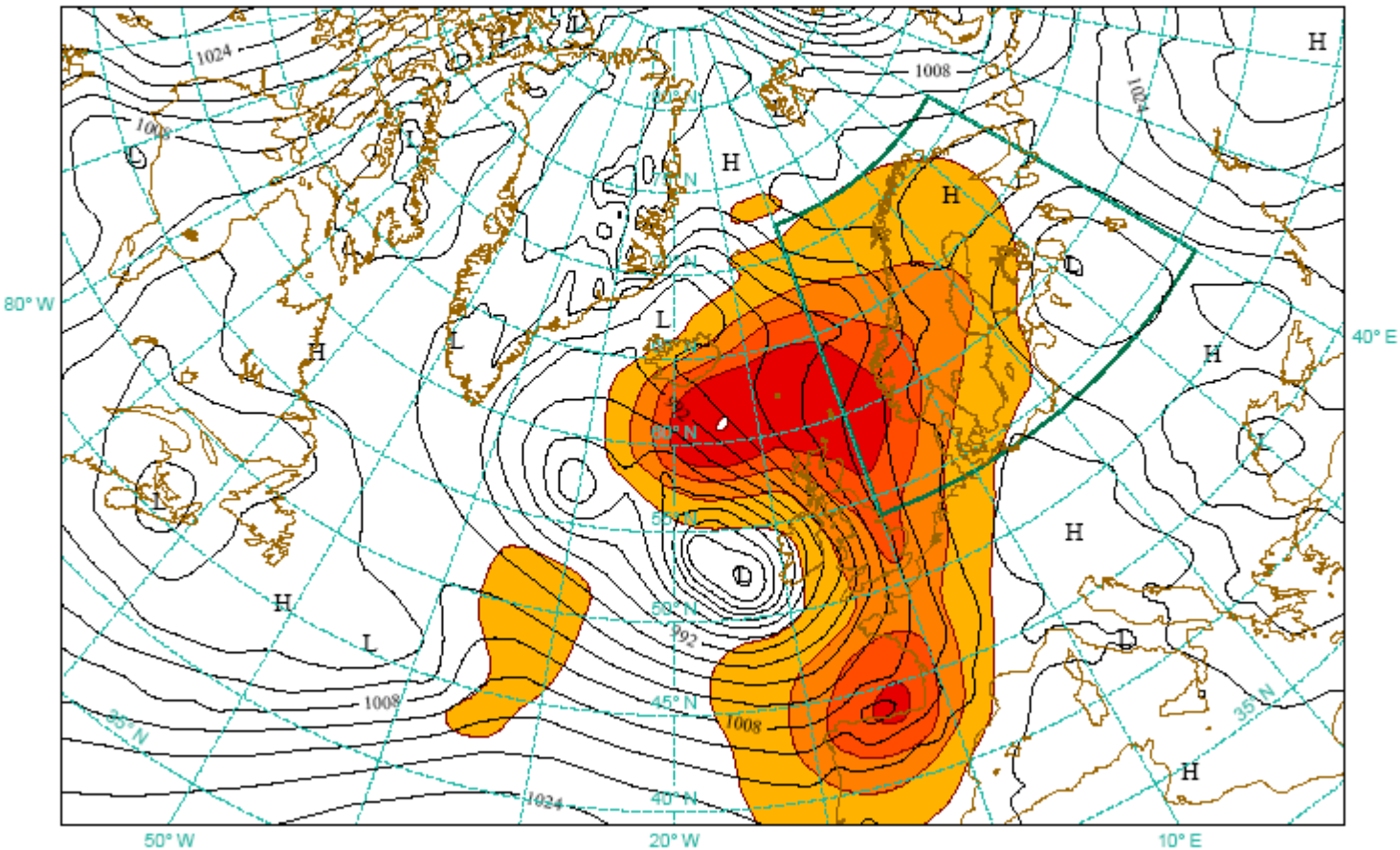

MSLP for T+36 DT 200703030000 VT 200703041200 ukmo nae main NWP
level 500 Geopotential Height for T+36 DT 200703030000 VT 200703041200 ukmo nae main NWP


level 925 Wind for T+36 DT 200703030000 VT 200703041200 ukmo nae main NWP


HIRLAM-T: Wind in 925hPa.
IT: Sat. 03. Mar. 2007 00Z
VT: Sun. 04.03.2007 12Z (+36 h)
50W
40W
30W
20W
10W
60W
60N
CS1
CS2
CS3
CS4
0 m/s
2 m/s
4 m/s
6 m/s
8 m/s
10 m/s
14 m/s
18 m/s
22 m/s
26 m/s
30 m/s
34 m/s
38 m/s

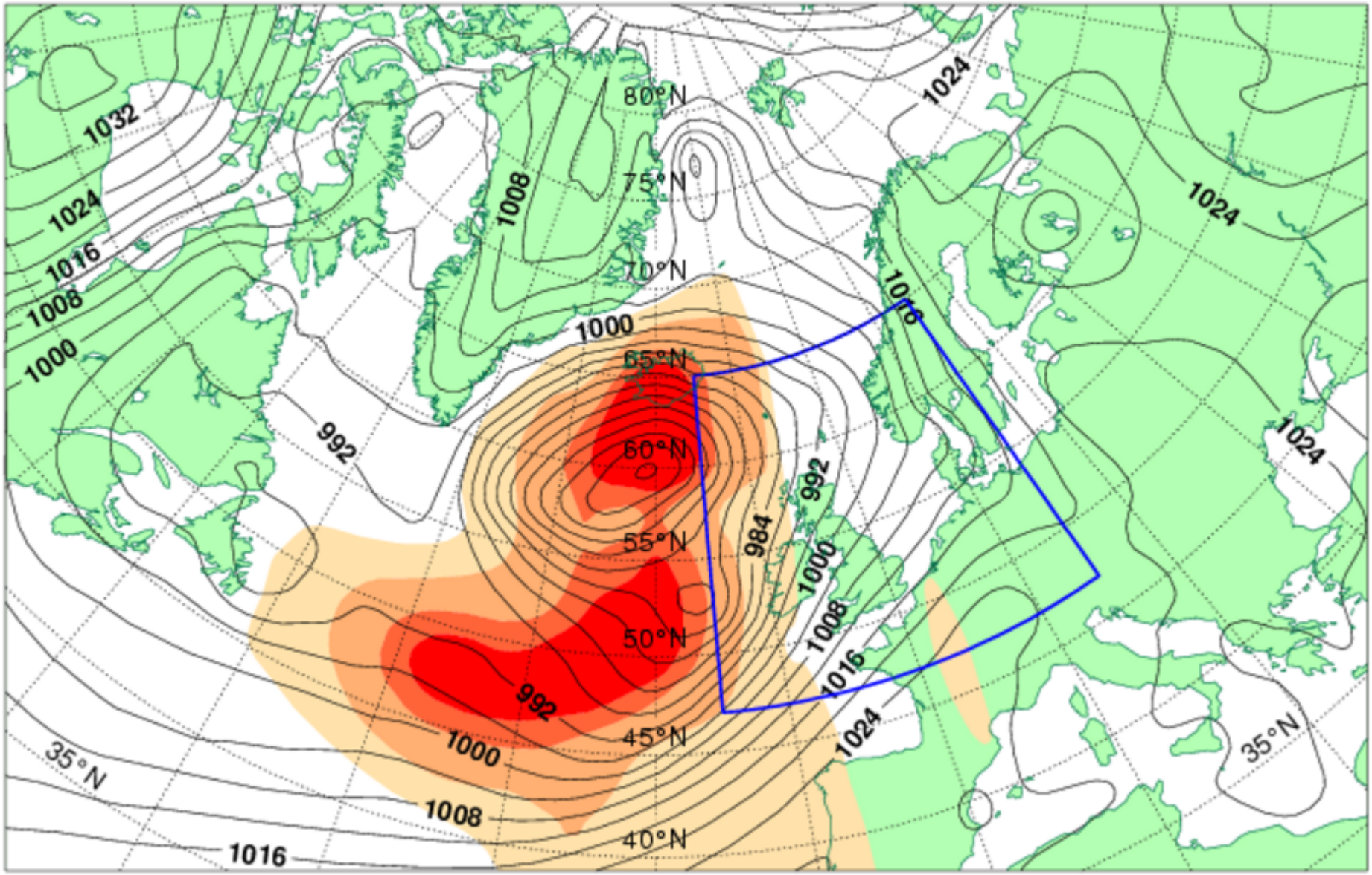

HIRLAM-T: Sensible (colored) and latent (contours) heat flux at the surface.
IT: Sat. 03. Mar. 2007 00Z
VT: Sun. 04.03.2007 12Z (+36 h)
-40 W/m²
-60 W/m²
-20 W/m²
-160 W/m²
-140 W/m²
-100 W/m²
-80 W/m²
-120 W/m²
0 W/m²
-180 W/m² -160 W/m² -140 W/m² -120 W/m² -100 W/m² -80 W/m² -60 W/m² -40 W/m² -20 W/m² 0 W/m² 20 W/m² 40 W/m² 60 W/m² 80 W/m² 100 W/m² 120 W/m²

ECMWF-SAP based on TE-SVs (dry T42) and MSL
Valid time: 20070304, 12 UT (Targeting Time)
Shading: areas of 8, 4, 2, 1 x10 ^{6} km^{2}
trajectory initialized from fc 20070303, 00 UT +36 h
Targ. time: 20070304, 12 UT / Verif. time: 20070306, 00 UT (opt: 36h)



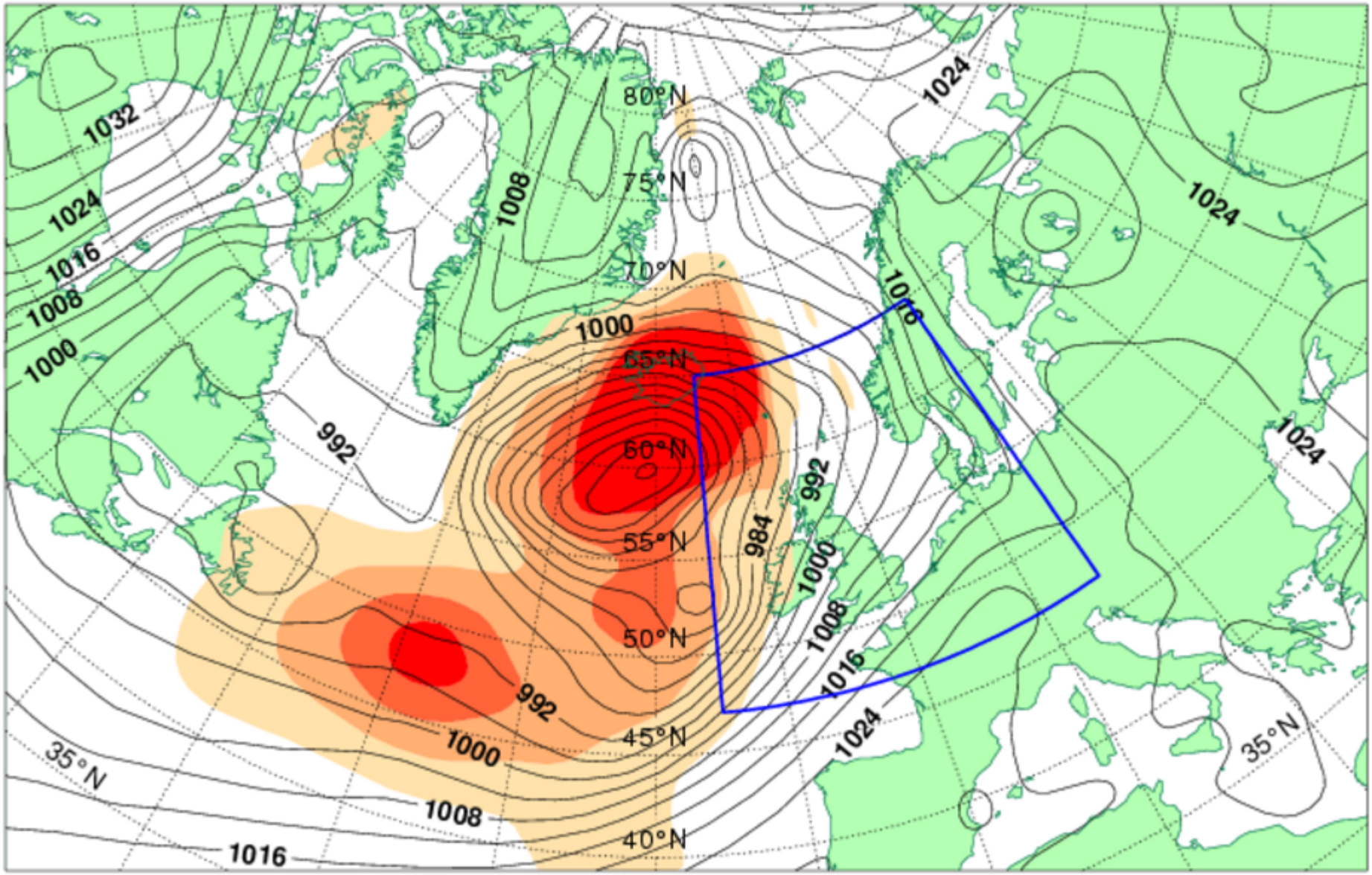
UKMO-SAP based on MOGREPS15-initialised ETKF summary map (colour)
MOGREPS control fc MSLP (black solid contour)

Shading: areas of 8, 4, 2, 1 x 10^6 km^2
Trajectory initialised from fc 20070303, 0 +60h (Lead time)
Targ. time: 20070305, 12UT / Verif. time: 20070307, 0UT (opt:36)

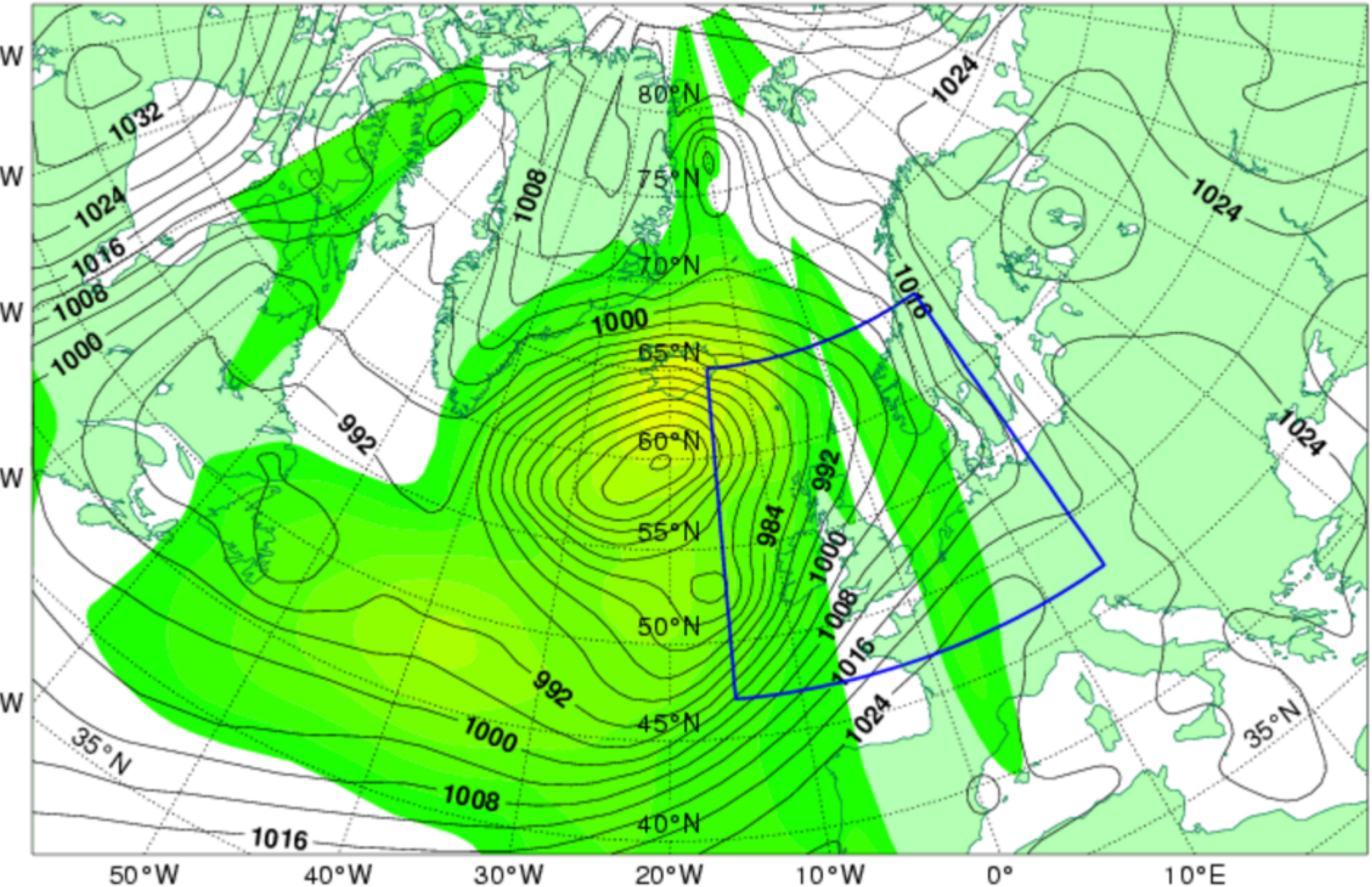


UKMO-SAP based on MOGREPS15-initialised ETKF summary map (colour)
MOGREPS control fc MSLP (black solid contour)

Shading: areas of 8, 4, 2, 1 x 10^6 km^2
Trajectory initialised from fc 20070303, 0 +60h (Lead time)
Targ. time: 20070305, 12UT / Verif. time: 20070307, 12UT (opt:48)

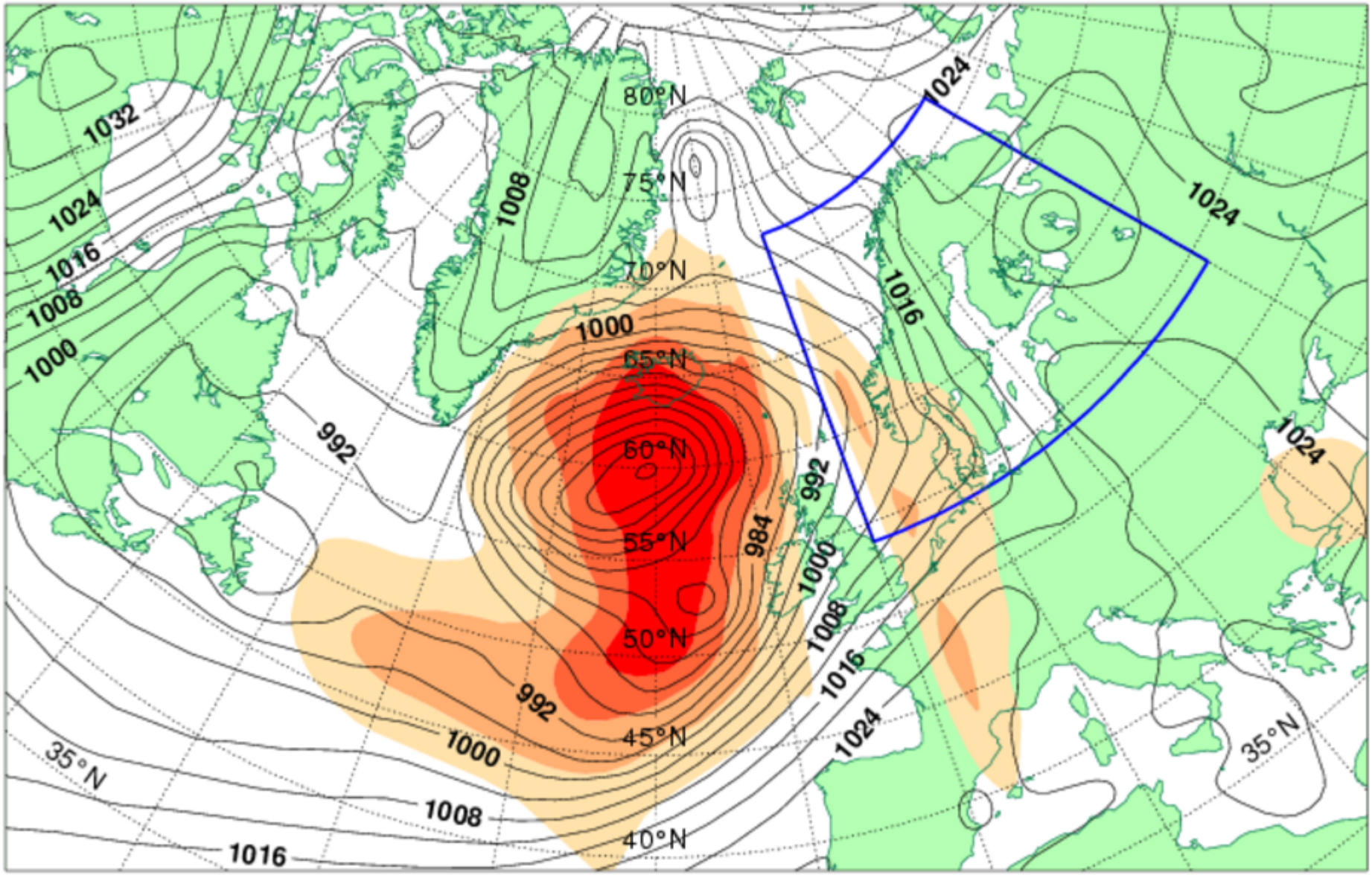


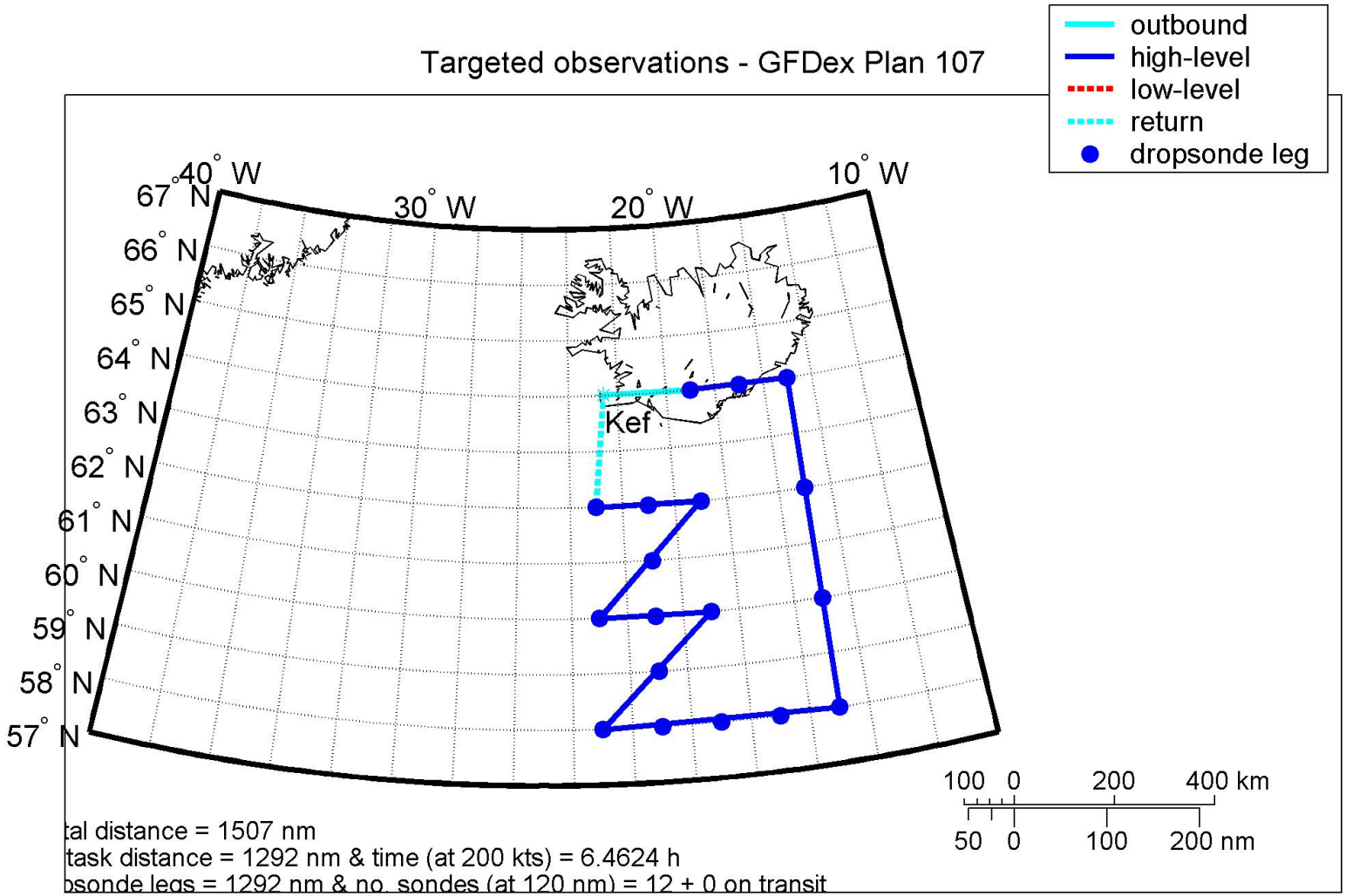
UKMO-SAP based on MOGREPS15-initialised ETKF summary map (colour)
MOGREPS control fc MSLP (black solid contour)
Maximum ETKF signal variance: 0.45
Trajectory initialised from fc 20070303, 0 +60h (Lead time)
Targ. time: 20070305, 12UT / Verif. time: 20070307, 12UT (opt:48)



UKMO-SAP based on MOGREPS15-initialised ETKF summary map (colour)
MOGREPS control fc MSLP (black solid contour)

Shading: areas of 8, 4, 2, 1 x 10^6 km^2
Trajectory initialised from fc 20070303, 0 +60h (Lead time)
Targ. time: 20070305, 12UT / Verif. time: 20070307, 0UT (opt:36)




Targeted observations - GFDex Plan 107
outbound
high-level
low-level
return
dropsonde leg
40° W
30° W
20° W
10° W
67° N
66° N
65° N
64° N
63° N
62° N
61° N
60° N
59° N
58° N
57° N
Kef
100 0 200 400 km
50 0 100 200 nm
tal distance = 1507 nm
task distance = 1292 nm & time (at 200 kts) = 6.4624 h
bsonde legs = 1292 nm & no. sondes (at 120 nm) = 12 + 0 on transit

Outlook

- Sunday 4th - Down day
- Mon 5th – Targeted Obs near Iceland
- Tue 6th – Barrier Wind + heat fluxes
- Wed 7th -
- Thur 8th
- Fri 9th – Tip Jet ?
- Sat 10th – Tip Jet?